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ORIGINAL ARTICLES.

A STUDY OF THE SNOOK-HERR POISONING CASE.[1]

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A WEDDING dinner was recently partaken of by sixty or seventy guests at the country-house of the bride's parents, near Louisville, Ky. Within a few hours the great majority of the guests were taken ill, all presenting the symptoms of gastro-intestinal inflammation. Within a few days several died. The lives of others were prolonged for from ten to fifteen days. Six cases finally terminated fatally. The symptoms in all the cases were essentially identical, differing only in intensity. Such an occurrence would under any circumstances have attracted much professional and popular attention, but in this instance it was probably increased by the social prominence of the victims and the number of people affected. Shortly after the repast, the newly-married couple left for the North. When their train reached Cincinnati, three hours later, both were feeling ill; they concluded to remain at a hotel over night, and continue their journey the following day.

Dr. Mitchell was called to see Mr. Snook at 10 o'clock on the evening of April 15, 1891. The patient was partly undressed and reclining on a lounge. He stated that he and his wife had arrived that evening from Louisville via the Shortline Railroad, and that the motion of the train had made him ill. He complained of nausea, abdominal pain, intense thirst and a constriction of the throat. He had vomited several times while on the train, and had had one stool. Upon inquiry as to what he had eaten, he said that he and his wife had attended a reception just prior to starting, and that he had partaken freely of chicken-salad, ice-cream and cake. His wife had eaten but little, and was only slightly nauseated. While giving this recital he vomited quite freely, the vomited matter consisting mainly of water, mucus and bile. The case was regarded as one of ordinary gastro-intestinal irritation, due to the character of the food eaten, and aggravated by the motion of the train, upon which latter point the patient laid particular stress. Although the pain was quite severe, it was deemed best to assist nature in washing out the stomach and unloading the bowel. The patient was given warm water in large quantities to drink, which was immediately vomited; after which one-tenth grain calomel powders were ordered to be taken one every hour, and mustard to be applied over the stomach. Dr. Mitchell then left, promising to return on the following morning. He was again summoned, however, at 2 A.M., and learned that the patient had continued to vomit. He had had three stools, and the pain in the stomach and bowels had become so severe as to be unbearable. A hypodermatic injection of one-third of a grain of morphine was administered. At the expiration of one-half hour the patient had become easy. At 7 A.M. on the following day Dr. Mitchell was informed that the patient had slept some, but he still complained of pain, vomiting and diarrhœa. The pulse was 100, and the axillary temperature 102° F. These symptoms continued throughout the day. Milk and lime-water were ordered; also a siphon of seltzer. These were mostly rejected, while the thirst increased. The calomel was discontinued, and a mixture of bismuth and paregoric was given. In the evening the temperature of the patient was found to be one degree lower. At the morning visit, on this second day, Mrs. S. presented the same symptoms as her husband, but not in so intense a degree. Her temperature, however, was the same as his. During the day Dr. Mitchell became convinced that his patients were not suffering from an ordinary attack of biliousness, and suspicion was aroused that some irritant poison had been ingested. Careful inquiry of the patients failed to furnish any light upon this point, both firmly believing that the motion of the train had produced their illness.

On the morning of the 17th, Mrs. S. had slightly improved, but her husband was worse in every way, save that his temperature had fallen almost to the normal. It continued to fall until late in the evening, when it was found to be subnormal. Dr. Hyndman was now asked to see the case in consultation, and from this time forward he and Dr. Mitchell continued in joint attendance. Mr. Snook was then in a condition of profound collapse. He was cyanotic, his heart's action very rapid and weak,

[1] Read before the Cincinnati Academy of Medicine, June 1, 1891.

the skin bathed in a profuse cold perspiration, and the axillary temperature 96°. Strophanthus was now administered per os. This was selected instead of digitalis on account of the continued irritability of the stomach. Morphine (one-tenth grain doses) combined with atropine was given hypodermatically. Warm applications to the body, in the form of frequent mustard baths, were employed.

During the fourth and fifth days there was improvement, the stools becoming less frequent, but the nausea continuing. At this time we learned of numerous similar cases having occurred in and about Louisville, all traceable to the same wedding dinner. It was ordered that the urine and vomited matters be preserved for us, but, by some oversight, we did not obtain any for examination until the sixth day of the patient's illness. On this day, and upon several subsequent occasions, the urine, vomited matter and mucous excretions from the bowel were carefully examined by Reinsch's method, but the bright copper strip showed no signs of the characteristic deposit of arsenic.

Beginning on the third and fourth days respectively both cases exhibited a decided eczematous eruption over the arms, shoulders, face and upper portions of the chest. In the case of the lady this continued during her entire convalescence, which began about the sixth or seventh day. In the case of Mr. S. the eruption had more of a papular appearance. Under strophanthus, whiskey and a bland diet for the next few days he appeared to improve. His heart's action became stronger, his temperature remained about 100°, and his abdominal tenderness diminished. Diarrhœa and vomiting were almost checked. But the thirst, restlessness, and mental hebetude were quite pronounced. Morphine in small doses was continued. There was also decided subsultus tendinum. His urine, heretofore passed in normal quantity, was found diminished, and had to be withdrawn by the catheter. On the ninth day of his illness but four ounces were secreted. We now resorted to the hot vapor-bath, reinforced by the hypodermatic injection of one sixth of a grain of pilocarpine. The profuse perspiration which followed was accompanied by a marked amelioration of his mental condition. Three injections of pilocarpine were made at intervals of eight hours. At the end of this time the kidneys appeared to have resumed their function and secreted almost the normal quantity; but catheterization was required from this time on.

While Mr. Snook could at all times be aroused without much difficulty, his mind seemed sluggish. About the tenth day epistaxis set in. Though not profuse it reappeared daily for several days. On the twelfth day, having for three days had no stool, he was given a saline cathartic in divided doses. The resulting passages each contained a small amount of bright-red blood, evidently from the lower bowel. From this time on the bleeding continued. Its amount was small, but it was constant, and the patient, though able to answer questions intelligently, did not seem to realize that hæmorrhage was going on. His restlessness continued, interrupted only by very brief naps, and, notwithstanding stimulants, his heart's action grew more and more feeble, occasionally intermitting. These intermissions grew more frequent and the contractions weaker, until the evening of April 30th, the sixteenth day of his illness, when he died.

During the week preceding death Dr. Long, of the Marine-Hospital Service, and on the last day, Dr. P. S. Conner, saw the case in consultation with us. The coroner was at once notified of the death; upon his arrival he decided to order a post-mortem examination and a chemical analysis of the tissues. The following is the pathologists' report to Coroner Bange:

"In accordance with your instructions we have this day, May 1, 1891, made a post-mortem examination of the body of W. B. Snook. The body was that of a well-developed, well-nourished, white, adult male, of the apparent age of about thirty-five years, about 5 feet 6 inches in height, and about 160 pounds in weight. Post-mortem rigidity and post-mortem staining were well marked. On the right arm and left leg were found numerous small elevations of the skin, resembling wheals. On section the subcutaneous fat was found in good quantity. *Pleuræ:* In the right pleura about one ounce of fluid blood was found, with some extravasations of blood under the pleura. The *lungs* were normal, with the exception of slight hypostatic congestion. *Heart:* An extravasation of blood, about the size of a split pea, under the endocardium of the left ventricle, was found. The *stomach* contained about three ounces of reddish, grumous fluid. The mucous membrane was marked by hyperæmia, and there was marked extravasation of blood in its substance. *Intestine:* The small intestine in its mucous and submucous coat contained extravasated blood; the mucosa was very hyperæmic, and the solitary follicles and the patches of Peyer were swollen. The large intestine was also hyperæmic, with swelling of the solitary follicles. The *liver* was somewhat fatty. The *spleen* was slightly larger than normal, firm and hyperæmic. The *kidneys* were fatty, with small extravasations of blood under the capsule and under the lining of the pelves. *Bladder:* Marked extravasation of blood under the epithelium and in the mucosa. The *brain and meninges* were normal.

"In our opinion the cause of death was, in all probability, the ingestion of some irritant poison.

"FREDERICK KEBLER.
"E. W. WALKER."

On May 8, 1891, the following report was submitted to the coroner by Dr. Dickore, the analytical chemist:

"On Friday, May 1st, you sent me for poison-analysis the following parts of the body of the deceased Mr. Snook: 1. The stomach and its contents, in separate glass vessels. 2. The liver, spleen, heart, kidneys, intestines, a piece of rib, etc., in another glass jar; all of which I have carefully examined and analyzed for metallic poisons.

"In the spleen, the liver, the intestines, and the other parts from jar No. 2, separately examined, I have found traces of copper-combinations in sufficient quantity to be separated and to answer all chemical tests for this metal. None of this was found in the stomach.

"The analysis for arsenic by Marsh's method resulted, in the case of the liver, spleen, intestines and stomach, in producing a few little spots on white porcelain, resembling those which arsenic gives by this method; but the spots were not larger than pin-points—only two of the size of small pin-heads—and it was impossible to produce the nitrate-of-silver reaction with them; and as this is the only absolute and true test for this poison, I cannot conscientiously call these little spots a positive proof of the presence of arsenic.

"If any larger quantity of poison had been introduced into the system of the deceased, it must have been eliminated during the sixteen days of his illness by physiological processes and careful medical treatment. Very respectfully, W. DICKORE."

Thus far we have given a full account of the two cases falling under our observation. The greatest interest necessarily attaches to the diagnosis of the cause of these symptoms. The diagnosis, reached by the process of exclusion during the life of the deceased, and expressed by us, was that we were dealing with cases of arsenical poisoning. At the present time, with the additional information before us, derived from post-mortem and chemical examinations, we feel even more confidently than before that our original diagnosis was correct.

A number of explanations offered themselves. Among them were the possibility of the existence of some acute infectious disease, such as trichinosis or typhoid fever, of mushroom-poisoning, or poisoning by tyrotoxicon or other ptomaine, or by irritant minerals, such as arsenic.

The early onset and the great severity of the symptoms, together with the proof that no form of pork was used at the meal, exclude from consideration the possibility of trichinosis. Though the post-mortem lesions, so far as the intestinal tract is concerned, somewhat resemble those of typhoid fever, the almost simultaneous attack of so many persons leads us very quickly to abandon the supposition of typhoid fever, even though we have before us some resemblance to the hepatic, renal and intestinal changes occasionally following the action of the typhoid bacillus, and the resultant chemical changes due to the ptomaines.

The possibility of tyrotoxicon-poisoning naturally suggested itself. Our patients presented the nausea, epigastric pains, vomiting, and purging characteristic of the action of this ptomaine. Their pupils, however, were never dilated, and, instead of subnormal temperature, they presented fever. The lesions found post-mortem also contra-indicate tyrotoxicon-poisoning; according to Vaughan, this ptomaine produces the symptoms without the lesions of gastro-intestinal irritation. Subsequent investigation showed that those wedding guests escaped who partook only of ice-cream and coffee with cream.

Mushrooms cannot be charged with the production of the symptoms, because some of the most severe cases were those of persons who had not eaten any mushrooms.

One of the latest of the many local theories of explanation is based upon the report that, at the time of the wedding, the chickens and turkeys at the bride's home were affected with chicken-cholera, and that some fowls showing evidence of being affected with this disease were used in the preparation of the salad. The report states that parts of these chickens, which were black, were cut off and the remainder utilized. It is difficult under the circumstances to conceive of the possibility of such an occurrence. We are informed by very competent authority that, in this vicinity, chicken-cholera is almost unknown so early as April; but aware, as we are, of the rapidity with which such pathogenic germs may multiply and cause general barnyard infection, we do not care to insist upon this objection. Persons living on a farm and familiar with chicken-cholera would be the first to recognize danger from this source. The further elaboration of the chicken-cholera theory is by no means convincing. We are told that the chicken-salad left over from the wedding was examined (eight or ten days later), and that ptomaines were found. As these investigations were not begun until after the death of several of the persons poisoned, and as the material examined consisted of such remnants of the wedding dinner as were still collectable at the end of a week of warm weather, it is not at all surprising that ptomaines should be present. Being chemical compounds, formed during the putrefaction of organic substances, such ptomaines would almost necessarily exist in the refuse food a week old; but, we are told, these ptomaines were identical with those found in the chickens which died of cholera and in the stomach of one of the victims (who died eight days after the wedding). As to this, we can only state that as far as we are acquainted with the literature of ptomaines, we believe that the ptomaine resulting from the action of the chicken-cholera bacillus has never yet been isolated. There is, therefore, good ground for scepticism regarding this discovery. In the light

afforded by the symptoms, the post-mortem lesions, the chemical analyses, the fact, already mentioned, that up to the present time no such anatomical lesions have ever been observed to follow ptomaine-poisoning, and the utter absence of any reliable experimental observations upon these ptomaines (or their precedent bacilli) in man—we feel justified in saying that the application of the ptomaine-theory to this case is not tenable.

Let us now consider the theory of a mineral irritant. The history of our cases has recorded the occurrence of thirst, nausea, retching and vomiting, epigastric and abdominal pain, tenderness on pressure, severe purging, decided fever, small, irregular pulse, labored respiration, suppression of urine, great restlessness, mental hebetude, eczematous eruptions, epistaxis, hæmaturia and intestinal hæmorrhage. Many of these symptoms were manifested by both, and all by the fatal one, of our cases. No poison but that of a mineral irritant could produce such an array of symptoms and such lesions as have been described. These post-mortem conditions, found by two of the most competent pathologists of Cincinnati, led them in their report to the coroner to state that the cause of death was probably "the ingestion of some irritant poison."

Portions of the liver, kidney, spleen, muscle, brain and bone were submitted to Dr. Dickore for chemical analysis. As stated in his report, Dr. Dickore found decided traces of copper, and lesser amounts of some other substance which might possibly have been arsenic, but which was present in too minute a quantity to be absolutely determined.

It is a well-known fact that copper, like antimony, silver and lead, often remains in the organs for many months after it has been taken. Copper may be taken under so many different circumstances and in such diverse ways, and is, in consequence of its slow elimination, so frequently found in the tissues, as to lead some very able toxicologists to claim that it is one of the normal consistents of the body. It is a well-known fact that copper exists in some edible vegetables, being taken up from the soil in which they grow. Then, too, copper salts are often employed to impart a fine, green color to pickles and other preserved fruits. Its frequent presence in the food and its very slow elimination might possibly account for the discovery of copper in the body of our patient. Its presence should never, however, be supposed to indicate copper-poisoning unless we have the symptoms and pathological lesions which are known to follow its administration in large quantities. These were entirely absent in our patients. The characteristic color of the vomited matter, the jaundice, the green line along the gums, were all absent. On the other hand, there were numerous bloody extravasations in the heart, liver, spleen and pleura, which, according to Tardieu, the greatest French authority, are altogether absent in copper-poisoning.

Copper rarely causes fatal poisoning. Such large quantities are required that the styptic taste would call attention to it, and thus, if homicide were intended, defeat the object. Natural verdigris is undoubtedly poisonous; but the supposition is too strained that, on the occasion of a wedding, unclean copper vessels should be employed, or even, if used, that enough verdigris should exist to poison fifty persons, many of them fatally. It is possible that the poisoning may have been produced by arsenite of copper, the symptoms of which are mainly those of the arsenical ingredient. In this case, however, the analyst would as likely have discovered the arsenical as the cupreous ingredient.

Having, as we believe, excluded all poisons other than arsenic, we desire to take up a few points of interest in connection with this as the probable agent. The late appearance of the pronounced symptoms in many of the cases has been by some considered as excluding arsenic from consideration; but it is recognized by all writers on this subject that there are few poisons which present a wider variation in the time of appearance of symptoms than arsenic. As one of the many instances of this fact we may mention the case recorded by Reese, in which, after a teaspoonful of arsenic had been taken by mistake, no symptoms whatever manifested themselves for six hours. It is true that no arsenic was discovered by ourselves in the tests made of the urine, the vomited matter, and the fæces. For this purpose the Reinsch test was employed, but, as stated in the narration of the cases, our tests of these excretions were not made until the sixth day. During this time vomiting and purging had been profuse and had probably eliminated the greater portion of the poison.

The question will naturally arise, If arsenic were the cause of death, why was it not found in definite quantity in the tissues in our fatal case? We reply that it was simply because the patient was kept alive for fifteen days, and the poison was eliminated by the vomiting, the purging and the excretion of kidneys, possibly the skin, this elimination being accelerated by the hot vapor-bath and the pilocarpine injections. It is a well-known fact that the eliminative functions may in the time alluded to entirely free the system of arsenic. In proof of this we need only cite one of many cases, *e. g.*, that of Dr. Alexander (*Medical Times and Gazette*, April 15, 1857), in which "a gentleman swallowed a large dose of arsenious acid, and after suffering the usual symptoms, died on the sixteenth day. Chemical analysis detected no trace of the poison in any organ of the body, although it was abundantly contained in the

food swallowed by the deceased." Casper says: "Arsenic may be eliminated by the excretory organs to that degree that it may entirely and completely disappear on an average of from one to two weeks. According to some experiments on animals, fifteen grains disappeared completely in three days." Taylor states that in many undoubted cases of arsenical poisoning not a trace of the poison can be found in the stomach or the contents. "It is, further, a well-known fact that if an individual, to whom arsenic has been administered with criminal intent, lives for fifteen or sixteen days, no part of the body may present any trace of the poison."

We are firmly convinced that had an analysis of the tissues been made in those cases in which death took place during the first week, arsenic would have been found and the whole matter long ago have been made plain. Instead of this being done, we learn from the Louisville press that in the case of one of the first to die, a man of high social and business standing, no post-mortem was made and no inquest was held. Instead of the pathologist and analytical chemist, an undertaker was summoned, who proceeded at once to embalm the body with an arsenical fluid. Fortunately, all cases were not handled in this peculiar manner. Scientific interest was not altogether thwarted. The one missing link in this chain of evidence is supplied by the results of the examinations made by Mr. Flexner, a most competent chemist of Louisville, who, with the attending physician, found arsenic (by Reinsch's method) in the urine of two of the non-fatal cases. A single positive observation of this character is of greater value than any number of negative and hypothetical statements.

In conclusion, we would say that at least one of our cases was so marked that, had we seen the arsenic administered, we could have looked for no more pronounced symptoms and no more characteristic pathological lesions. These, considered in connection with the analyses just referred to, in cases having the same origin and many of the same symptoms, leave no doubt in our minds that arsenic was the offending substance.

At this distance so many difficulties and conflicting statements are encountered in our search for the particular ingredient containing the poison that for the present we purposely omit discussion of this feature.

ADDENDUM.—Since presenting the foregoing report to the Academy, the Coroner of Louisville has begun an inquest. The testimony of the father of the bride, at whose home the wedding-dinner was given, completely demolished the chicken-cholera theory. Mr. Herr stated that the chickens and turkeys on his place were healthy, and that not a fowl had died there for years. The chickens were prepared and dressed by a colored woman on the place, and the family had been eating of the giblets for three meals. He stated also that there were no copper vessels on his place. The food was cooked in iron vessels.

ICE-CREAM POISONING.

BY GEORGE S. HULL, M.D., PH.G.,
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WITH the advent of summer comes the increased consumption of our so-called "national luxury," ice-cream; and, *pari passu*, numerous reports of sickness, sometimes even of deaths, caused by this supposed harmless delicacy. That very many cases of illness are not reported, and on account of hasty and imperfect diagnoses that even more are not recognized, cannot be doubted. The profession has failed to give this important matter the attention it demands.

About four years ago the writer published a report of some experiments he was then performing with a view to ascertain the toxic agent in cases of ice-cream poisoning; since that time he has been following up this line of investigation, and now feels that a fuller exposition of his views may prove of use to the profession.

Previous to the time of the discovery of tyrotoxicon by Dr. Vaughan, cases of poisoning by ice-cream which could not be traced to the criminal introduction of foreign substances, such as arsenic, were thought to be due to the milk having been taken from cows which were diseased, or improperly fed and cared for. But the query would arise: If, from such causes, ice-cream be poisonous, why should not milk, which is consumed so much more largely, cause a far greater amount of illness? The same question comes up when we consider Dr. Vaughan's claim that tyrotoxicon is the cause of the trouble. The eminent professor has not only found the ptomaine in ice-cream which has manifested poisonous effects, but has studied the subject thoroughly, even to the painstaking analysis which proved it to be diazobenzol.

Tyrotoxicon is the product of a peculiar kind of fermentation, but the ferment which excretes it is not precisely known, neither are the conditions which are most favorable to its development matters of exact knowledge. When the microörganism which generates this poison is present in milk at a temperature of 98°, we may look for the production of tyrotoxicon, but we may fail to find it because it is quite ephemeral, breaking up, by further fermentation, into other and probably less harmful compounds. Even following Professor Vaughan's directions, one finds it difficult to make tyrotoxicon; he is taxed to get the milk into the precise condition necessary for the generation of the com-

pound, and, since it is so apt to change into other substances, yet more taxed to know when it is ready for extraction. The fermentation which elaborates the ptomaine would, therefore, seem to be but a fortuitous occurrence, in no wise comparable in constancy to the lactic fermentation. One would infer that tyrotoxicon would most likely be present in milk which has been kept in warm places, in unclean cans, and especially in a vitiated atmosphere; and as these conditions very frequently obtain, why do we not hear of numerous cases of milk-poisoning, and but few of poisoning by ice-cream, instead of the *reverse?* Further, a boiling temperature will not only destroy the ferment, but break up its excretion, tyrotoxicon; and a freezing temperature should certainly not be conducive to the growth and activity of cell life. Many ice-cream mixtures are boiled before being frozen, and, thus sterilized, the chances of fermentation are reduced to a minimum.

Without further argument, it seems obvious that the tyrotoxicon theory will explain but a portion of the cases of ice-cream poisoning, and after eliminating those due to it, and the others caused by the vicious introduction of foreign poisons, we have remaining a large, and I believe a very large, number of cases unaccounted for. To these we now direct our attention.

Granted that the ice-cream mixture, whatever be its composition, is free from any poisonous ingredient, and that it has even been sterilized by heat before being put into the freezer; let us inquire whether there be any possibility of its acquiring poisonous properties while undergoing the process of freezing, or during its stay in the freezer. In short, Is the modern ice-cream freezer, after the innocuous mixture is put into it and the power applied, guilty of engendering in its contents any deleterious substance?

The composite freezer of to-day might be described as an iron paddle coated with zinc, resting upon an iron bottom coated with the same metal, and a surrounding tinned-copper or tinned-iron can. Now, should the zinc or copper, by any chance, be dissolved to any extent by the contents of the can, we must expect serious results. This is the point we wish to consider, and in order to be understood by those who may not be acquainted with the methods we shall pursue, it may be well to begin by instituting a simple comparison. If we expose a piece of wood to the air, it will be very slowly burned (oxidized), but if we make the conditions more favorable by first raising it to an incandescent state, it will be rapidly consumed. giving out a poisonous gas (carbon dioxide), and liberating a force which we call heat; now substitute zinc for the wood, and a dilute acid or a solution of common salt for the air, and we find that the zinc will be slowly burned (chemically combined). But if we make the conditions more favorable by placing with it in the liquid a metal (tin will do), less soluble than the zinc, and bring them into direct contact with each other, or connect them by means of a conducting wire, then we at once have a more rapid combustion of the zinc, which enters readily into chemical combination with the liquid—the result being that a poison, zinc chloride, is generated, and also a force analogous to heat, which we collect and call electricity. As the heat cannot be produced except the wood burn, and the more wood consumed the greater the heat, so neither can the electricity be evolved unless the zinc be eaten up by the liquid, and the more metal dissolved the greater the amount of electricity eliminated. From this we at once conclude that if we can get any electricity from the ice-cream freezer while its contents are being frozen, or before or after, then there must be some chemical action going on between the liquid and the zinc (or, in some kinds of freezers, the copper), by which the metal is taken up and held in solution by the ice-cream, rendering it dangerous to consumers in direct proportion to the amount of metallic poison held in solution. But how shall we tell if electricity is being generated? We determine heat by means of a thermometer, electricity by the use of a galvanometer. The principle of the latter instrument is quite simple: If we take a magnetic needle, bend around it, longitudinally, a turn or more of copper wire, and pass a current of electricity through the wire, the needle will swing to the right or left according to the direction the current is travelling, and the deflection will also be proportionate to the strength of the current developed.

Now we are ready for our crucial test: we are to prove that the modern ice-cream freezer is in reality but a form of galvanic cell, the only difference being that in the cell the current is utilized and the poisonous solution of zinc thrown away, while in the freezer, proper allowance being made for the wide difference in the amounts of zinc dissolved in the cell and in the freezer, the current is wasted and the toxic metallic solution is eaten.

Let us institute a closer comparison: If we put in an acid solution a strip of zinc and one of tin, and connect them by a conducting wire which runs through the galvanometer, at once the needle is deflected, which means that the zinc is being consumed by the acid; so, if we take a tinned can and a zinc-coated paddle in the modern freezer, and instead of letting them be in contact at the bottom, as is the case, lift the paddle a trifle and make the contact above by means of a wire—in order, for the purposes of the test, to get the galvanometer in the circuit—we shall find that on putting into the can

even the purest and simplest ice-cream mixture (cream, sugar, and flavor) there is a deviation of the needle in our galvanometer, telling us that a current is passing, and that it comes from the chemical action between the ice-cream and the zinc, or, in other words, that, however slowly, the poisonous metal is dissolving. Briefly, then, this is what occurs: the zinc or positive element is acted upon by the fluid and a current generated, which passes across the cream to the tin or negative element, then up the wire through the galvanometer and back to the zinc, completing the circuit. The longer the zinc is in the freezer the greater will be the amount dissolved, the rapidity of the solution being directly dependent upon the character of the mixture in the can.

Without introducing lengthy tables, let me summarize a large number of experiments by saying that while pure, sweet cream in the modern freezer deflected the needle of the moderately sensitive galvanometer but 7°, the cream, when sour, swung the needle violently to 90° (*i. e.*, to a right angle to the current). Pure milk registered 40°, and when sugar and corn-starch were added, 45°. When eggs were incorporated the needle moved to 80°. None of the formulæ for ice-cream mixtures failed to show *some deflection*, proving that *all* of them were capable of acting in some degree upon the zinc. When any of these mixtures became sour, or when acid fruits were added, the needle turned rapidly to 90°. If by any mischance salt finds its way into the cream, the deflection is greatly increased on account of the zinc being more rapidly dissolved by the active sodium chloride. The resulting zinc chloride renders the ice-cream so much more poisonous.

The modern ice-cream freezer, therefore, has two fatal defects: first, it has two dissimilar metals, one (the positive element) more soluble than the other (the negative); and, secondly, it has these metals in contact—in other words, it is a galvanic cell in closed circuit. It follows that we have only to put into the freezer some ice-cream mixture, as an electrolyte, in order to get a metallic decomposition and solution, which is proved by the current generated. The amount of poisonous metal dissolved depends upon the character of the mixture used.

Now, what is the remedy? We must conclude that it lies in making the freezer of one metal, and that metal the most insoluble that can be had. Did not cost enter into the consideration of the matter, platinum would make the model freezer. Pure tin, or heavily tinned iron, would be acceptable, while glass, if it could be made tough enough without the addition of lead, arsenic, etc., would be still better. If two dissimilar metals must be used, I would not allow them to be in electrical, *i. e.*, immediate contact. I would also freeze the mixture rapidly and remove the more soluble metal immediately when the cream is sufficiently solid. If ice-cream is made of pure ingredients, even in the modern freezer, provided it has been previously well cleaned and that the paddle is removed so soon as the mixture is frozen, the zinc dissolved will hardly be sufficient to produce symptoms of poisoning even in a large consumer, and yet we know that many people with sensitive digestive organs find ice-cream very frequently disagrees with them. But if the cream is prepared, say for a picnic which is to start early the next day, and if the paddle is left in place all night, so as to re-freeze it in the morning should it have softened through the night, and especially if, as is often the case, the mixture is a cheap one, made of milk, eggs, corn-starch, etc., then we have a first-rate galvanic cell, with its zinc and tin, or, in some cases, copper elements.

As we have seen, the chief mixture is the electrolyte, and the electric action of the whole may, perhaps, be heightened by the presence of some salt added by accident or design. The result will be that the current flows all night—itself doing neither harm nor good to the mixture, but the deadly zinc or copper has all this time been dissolving in the ice-cream. In different cases between these extremes we may have many grades or degrees of solutions of zinc or copper, dependent upon the conditions already mentioned.

Were space at our command we might apply the same character of reasoning to canned fruits, vegetables, etc.

We might sum up the results as follows:

1. If we desire the least quantity of metallic poison in our ice-cream, and still keep in use our modern freezer, we should see that the ingredients are pure, that the mixture is frozen quickly, and the paddle at once removed.

2. The amount of poisonous salts is increased by acid mixtures, especially by the addition of eggs, corn-starch, etc. The addition of salt for flavoring purposes, as done by some manufacturers, becomes criminal, and it is grossly careless to allow any of the salt water from the outside to get into the can. If through fermentation ice-cream should contain tyrotoxicon, then the mixture must be acid, and will, on this account, dissolve still more zinc or copper.

3. The amount of dissolved metal depends upon the length of time the paddle is left in the can, or, if the can have a zinc-coated bottom and tin sides, the length of time the cream remains in it; or the amount of electrical action will again vary if the can be copper coated with tin, and the tin be worn off so as to expose the copper, thus producing local currents and dissolving the copper.

But if the danger element is to be entirely removed from our "national luxury" it is more important

that there be used in the construction of the freezer but *one kind of metal*, and one not easily oxidized. No *dissimilar metals should be in contact in any fluid* for human consumption, especially if the fluid be acid, or contain any saline matter.

THE NUTRITIVE VALUE OF BEEF PREPARATIONS.[1]

BY R. H. CHITTENDEN, PH.D.,
PROFESSOR OF PHYSIOLOGICAL CHEMISTRY IN YALE UNIVERSITY.

I HAVE been asked to consider this subject mainly from the chemical standpoint and to furnish some information regarding the nutritive value of the various beef preparations which, as concentrated foods, are at the disposal of the physician and the public in general. It certainly is an important matter, one in which we are all interested, for there are many occasions in a physician's practice when it is a question of nutriment rather than of medicine, and we certainly need as definite knowledge of the nutritive properties of the foods we employ as of the medicinal virtues of the drugs of which we may make use.

Let us consider first some of the principles which should guide us in forming an estimate of the nutritive value of a food preparation.

It is a well-understood physiological law that the proteid or albuminous food-stuffs are essential to animal life. They alone contain the peculiar groups of chemical elements necessary for the upbuilding of animal tissues and for the renewal of the worn-out structures of the animal body. The cells and tissues of animal organisms, together with the majority of the animal fluids, are composed in great part, aside from the water they may contain, of albuminous matter or closely allied derivatives. During the life of the organism this material is constantly undergoing decomposition, and to make good this loss new proteid matter must be supplied. An increase in the amount of non-nitrogenous food will not supply the lack of proteid matter, for, as is well known, continued deprivation of the nitrogenous food-stuffs will ultimately result in nitrogen-starvation and death. Hence, no substance can serve permanently as food for the human body unless it contains a certain amount of this peculiar nitrogenized matter in a readily assimilable form. Further, it is not enough that a food contains nitrogen, but this element, to be of use to the body, must be combined in some peculiar way, as in the proteid molecule. Even such closely related nitrogenous substances as collagen and gelatin will not fully take the place of a true proteid, though containing as large or even a larger percentage of nitrogen. This is a point which needs to be emphasized, for we hear so much about the importance of nitrogen in the economy that we are liable to overlook the fact that nitrogen *per se*, or in the majority of its combinations, is valueless; that it is only in one peculiar form that nitrogen can be utilized by the animal organism, viz., in the form of proteid matter.

The proteid food-stuffs may therefore well be called the essential food-stuffs, in distinction from the accessory, as the fats and the carbohydrates. They serve a double purpose in the economy: they not only furnish by their metabolism a considerable amount of energy to supply the general needs of the body, but, as already said, they especially constitute the tissue-building and tissue-restoring foods, and as such are absolutely indispensable to the well-being of the organism.

It has been generally assumed that the animal and vegetable proteids have approximately the same nutritive value. This, however, is probably not wholly true, since there is a noticeable difference in the chemical composition of the two forms—a difference which might well be assumed to have some degree of significance. As a rule, to which there are marked exceptions, vegetable proteids contain somewhat more nitrogen and a correspondingly less amount of carbon than the animal proteids. Now it is well known that nearly all of the nitrogen entering the body in the form of proteid matter is ultimately eliminated as urea, but the amount of carbon contained in the urea is not equal to the carbon contained in the proteid matter ingested; in other words, the proteid food, in serving its purpose in the economy, is apparently broken down into a urea moiety, containing practically all of the nitrogen together with a portion of the carbon of the original proteid matter, while there remains a carbon-containing residue which may be either oxidized at once or stored up in the body as glycogen or fat, for possible future use. Hence, it has been argued that the lower the content of nitrogen and the higher the content of carbon in a proteid substance, the greater its nutritive value.

This view, which in general favors the idea of a higher nutritive value for animal proteids, must, however, be considered in connection with the relative digestibility and assimilation of the two classes. Such experiments as have been tried (mainly upon dogs) appear to indicate that the albuminous matter of muscle-tissue and the proteids of the blood, for example, are more readily digested and absorbed than many of the vegetable proteids, such as the gluten of wheat, and if this should prove to be a general rule it would constitute an additional reason for assuming a relatively higher nutritive value for

[1] Read before the Philadelphia County Medical Society, May 13, 1891.

the animal proteids. There is, further, an additional reason for this generally accepted view—one which is dependent upon the association of the proteid, rather than upon the character of the substance itself. Thus, the most common form in which the animal proteids are taken as food is flesh or muscle-tissue, in which the albuminous matter of the tissue is intimately associated with the nitrogenous extractives contained in the muscle-serum. These latter bodies unquestionably possess stimulating properties, and to this fact is to be ascribed, in part at least, the more invigorating action of the animal diet. Furthermore, the observations and experience of clinicians the world over have clearly pointed to the greater value of animal food in all conditions, either in prolonged illness or in prostration from any cause, when it is necessary to provide nourishment in a form capable of promptly invigorating the bodily powers, and with the least expenditure of energy on the part of the economy.

It has thus come about quite naturally that beef, being, perhaps, the most convenient form of animal material, has almost universally been employed in the preparation of concentrated foods. At first, from lack of knowledge of the true nutritive value of proteids, efforts were confined wholly to the preparation of concentrated extracts of beef, in which practically all of the proteid or nutritive matter of the tissue was rejected as either indigestible or worthless. When Liebig's extract of meat first came into use it was looked upon as containing in a small volume all of the nutritive and valuable portion of the tissue. The chemists and physiologists of that date even went so far as to say that the tastelesss residue, left after extraction of the flesh with hot or cold water, was as worthless as a stone, ignoring the fact that this residue of proteid matter could be digested as well as the fresh tissue, and made use of accordingly. Our knowledge on these subjects has steadily increased since then, and it is now generally known that an extract of beef made after the old plan of extracting the meat with boiling water is practically devoid of nutritive power. This is shown by the chemical composition of such extracts, as illustrated, for example, by Liebig's and Armour's extracts of beef, as well as by physiological experiment. I have recently analyzed these two widely known preparations, and the results fully substantiate the prevalent opinion regarding their nutritive value.

It is unnecessary for our purpose to make any comparison of these two products. They are essentially the same, both being composed mainly of the soluble extractives and inorganic salts of muscle-tissue, the former representing the waste products of muscle-metabolism. The content of nitrogen in both preparations is large, but this nitrogen is not to any extent available for the nutrition of the body. It exists, not in the form of proteid matter, but as a part of certain crystalline nitrogenous bodies soluble in 80 per cent. alcohol. One of the most important of these is creatin, a body always present in extracts of muscle, but which has little nutritive power. Introduced by itself into the animal system, it is neither stored up nor used up, but is simply excreted in the urine, practically unchanged. In the same manner, an extract of beef taken as food fails to show any direct nourishing power; it does not diminish the amount of true food required to keep up nitrogenous equilibrium or to sustain the bodily powers. Further, according to Kemmerich, an animal fed upon an extract of beef alone will succumb more readily than a like animal entirely deprived of food. Hence, the nutritive value of meat or muscle-tissue evidently does not lie in the soluble extractive matters, but rather in the rejected insoluble proteid portion of the tissue. Such extracts, however, are not by any means to be considered as worthless; they have, it is true, little value as foods, but, on the other hand, they are possessed of certain stimulating properties which render them of more or less value as stimulants or restoratives. Among other ways this stimulating action is manifested by a quickened and stronger heart-beat, mainly due, it is said, to the large amount of potash salts in the extract. An extract of beef may, therefore, be likened to an alcoholic stimulant rather than to a food. This, indeed, has for some time been recognized, and hence to supply the demand for a more nutritive product than the ordinary extract of beef there has arisen a class of preparations, under the name of beef juice or meat juice, which are stated to possess the nutritive properties of choice beef to a high degree, as evidenced by the presence of soluble albuminous matter. Such preparations, however, as I have analyzed fail to show in their chemical composition any evidence of great nutritive power. Thus, an analysis of Valentine's Meat Juice and of Wyeth's Beef Juice shows them to possess the ordinary characters of dilute meat-extracts, with a small addition of soluble albumin. This addition, however, is too small to have any practical significance. Certainly a food which contains only one-half of 1 per cent. of proteid matter cannot in any sense be termed a concentrated nutrient. Aside from this small amount of soluble albumin, these preparations are in no wise different chemically from an ordinary extract of beef, except that they are less concentrated.

As illustrations of a somewhat different kind of soluble food, containing considerable soluble albumin, we have Murdock's Liquid Food, and Bovinine, or Bush's Fluid Food. Chemically, these two food products are essentially the same.

Both contain only a small amount of solid matter (16 to 19 per cent.), but this is mostly nutritive, being composed in great part of soluble albumin. The appearance of the products, together with the small amount of mineral matter, and especially the small amount of phosphoric acid, would indicate that they are not prepared from muscle-tissue, but rather from blood. Further, all or nearly all of the nitrogen in these preparations is available for nutriment, as it exists in the form of proteid matter. Thus, in Murdock's Food, if the percentage of nitrogen, 2.29, be multiplied by the factor 6.25, on the assumption that the proteid contains 16 per cent. of nitrogen, the result is 14.31 per cent., just equal to the amount of soluble albumin found. Neither of these preparations is, however, equal in nutritive value to fresh lean beef, unless the soluble character of the albumin should tend to render it more easily available by the system, and thus raise the nutritive value considerably above the point indicated by the percentages of nitrogen or proteid matter.

In Johnston's Fluid Beef, an attempt has apparently been made to obtain a preparation which should possess the stimulating properties of a simple extract of beef and at the same time have the nutritive qualities of the tissue itself. This product apparently consists, as indicated by the analysis, of an extract of beef to which has been added a portion of the insoluble tissue, ground to a fine powder, and the mixture evaporated to a pasty consistency. Apparently, the soluble proteids of the tissue have been coagulated in the process, since the preparation contains no soluble or coagulable albumin. Of dry insoluble matter, the analysis shows 10.02 per cent., of which 9.12 per cent. is insoluble proteid matter. This practically represents the bulk of the truly nutritive matter contained in the preparation. The remainder of the nitrogen-containing substance is soluble in hot and cold water, being composed in great part of crystalline extractives, soluble in 80 per cent. alcohol, although there is likewise present some soluble gelatin or gelatoses, apparently formed by the hydrating action of boiling water on the collagen of the connective tissue. These, however, as previously stated, have little or no real nutritive power.

In any preparation of powdered meat, or of other insoluble proteid matter, there is a great tendency for the nutritive value of the product to be impaired by the long-continued drying to which the proteid material is subjected. The digestibility of the preparation is thereby diminished, and in a corresponding degree its nutritive power. Hence, as you know, in many cases the plan has been adopted of predigesting a portion of the proteid food-stuff prior to its desiccation, by which treatment the proteid matter is rendered partially soluble and diffusible, and hence more readily available, especially for weakened digestive organs. Such preparations, if properly made, must necessarily possess high nutritive value. As an illustration of such a food, I have analyzed a sample of Beef Peptonoids, manufactured by the Arlington Chemical Co., which I understand is prepared from the flesh-forming elements of beef, wheat and milk. At first glance, the small amounts of water and mineral matter in this preparation, together with the large quantity of soluble matter (more than half the water-free substance), are strongly suggestive of possibly high nutritive value. This, however, is at once contradicted by the low percentage of nitrogen, which cannot mean at the most more than 27.6 per cent. of proteid matter. In reality, about three-fourths of this preparation is composed of non-nitrogenous matter, mainly starch and sugar. Of soluble products of digestion—albumoses and peptone, directly available as nutriment—it contains only 7.31 per cent.; of insoluble proteid matter, about 20 per cent., of which certainly a large proportion is in the form of vegetable matter. Hence, as a concentrated tissue-restoring food, it is far below the possibilities. Taking the amount of total proteid matter as an index of its nutritive value, it is about 1.4 times as concentrated as fresh lean beef.

Another preparation of this same order, but which shows a much more promising chemical composition, is Mosquera's Beef Meal, a pre-digested, powdered meat. Its composition indicates that, aside from the small percentages of water and inorganic salts contained in it, the entire product is composed of nutritive matter; in other words, about 90 per cent. of the preparation is nutriment, of which 77 per cent. is albuminoid matter and 13 per cent. fat. Further, of this 77 per cent. of albuminoid matter, 29.43 per cent. is in the form of soluble products of digestion, albumoses and peptone, ready for immediate assimilation. In other words, nearly all of the dry matter soluble in water (31.26 per cent.) is composed of proteid substances directly available for the needs of the body, with a minimum amount of work on the part of the digestive system. That portion of the product insoluble in water is composed almost wholly of albuminoid matter and fat. This albuminoid or proteid matter (47.8 per cent.), however, is, I think, in a form more easily available for nutriment than ordinary dried muscle-tissue. In order to make clear my reasons for this belief, I must digress for a moment to call attention to the character of the digestive ferment employed in the peptonization of the beef-tissue. A short time ago it was discovered that the juice of the pine-apple contained a ferment capable of digesting proteid matter. This fact has, I understand, been made

use of in the preparation of the food-product named, the process consisting essentially in digesting fresh beef with the juice of the pineapple until the proteid tissue is partially peptonized, and then desiccating the product. At present, experiments are being carried on in my laboratory with a view of ascertaining something regarding the chemical and physiological action of this peculiar ferment, which, up to the present time, has not been scientifically studied. The juice obtained from a ripe pineapple is decidedly acid, possessing, on an average, an acidity equal to about 0.3 per cent. of hydrochloric acid. This juice possesses in a marked degree the power of dissolving proteid matters, especially coagulated egg-albumin and blood-fibrin. This proteolytic action is apparent both in an acid and in a neutral fluid, the action being most energetic, however, when the fluid is neutral. Such portion of the albumin as is dissolved is converted into soluble albumoses and peptone, but we have noticed that when an excess of proteid matter is present, this excess, although not dissolved, is plainly acted upon, being disintegrated and giving other evidence of some kind of change which apparently renders it more readily soluble in the natural digestive juices than ordinary muscle-tissue. For this reason I am inclined to the belief that the insoluble proteid matter of the Mosquera Beef Meal is more readily available for nutritive purposes than ordinary desiccated beef.

VENTRAL HERNIA; RUPTURE OF COVERINGS; ESCAPE OF INTESTINES AND THEIR EXPOSURE FOR EIGHTEEN HOURS; RECOVERY.

BY JAMES J. McKONE, M.D.,
SURGEON TO ST. JOSEPH'S HOSPITAL, TACOMA, WASHINGTON.

Mrs. J., aged forty-nine years, mother of one child sixteen years of age, was twelve years ago treated for what her physician called an abscess of the abdominal wall. She was confined to bed for ten months. When she got around again she, for the first time, noticed a hernia. With the exception of weakness from this she suffered no more until the current year, when she noticed the skin over the "tumor" becoming black; she consulted a physician, who told her it was gangrene of the skin, and who applied treatment.

February 10th, about a month later, she fell from a stoop, and the gangrenous tissue gave way for an extent of four and one-half inches, from just below the umbilicus in a direction downward and outward toward the centre of Poupart's ligament on the right side. Through this wound thirty-four inches of the small intestines escaped. The patient walked into the house without assistance and went to bed. Her husband covered the gut with a towel and sent for Dr. Norgren, a Norwegian physician. The latter not being at home, and the husband being unable to speak a word of English, he waited for Dr. Norgren till the following morning, the intestines meanwhile lying on the abdomen covered by the towel.

I was called to the case by Dr. Norgren at 3 P.M. The accident had happened at 9 P.M. of the previous evening, making the time during which the intestines had been exposed eighteen hours. The towel was found adherent to the intestines; after it was carefully removed by irrigation with hot bichloride solution, the exposed coils of intestines were found matted together by recent adhesions, which were easily broken.

The patient's condition was good; the pulse 90 and full; the temperature 100°. Ether was now administered, and examination showed that the abdomen was traversed by thick bands of adhesions, most of which ran between the two widely separated portions of the abdominal fascia. These bands were tied and separated, the abdominal cavity thoroughly irrigated with hot water and the intestines returned. On account of the large amount of gas it was necessary to puncture the gut with a small trocar before reduction could be accomplished. The cavity of the abdomen was again thoroughly irrigated, and the wound closed by a continuous silk suture; after cutting away the gangrenous tissue, which consisted of a strip one inch wide in the whole length of the wound, a glass drainage-tube was inserted in Douglas's pouch and brought out at the lower angle of the wound.

It was impossible to perform an operation for the radical cure of the hernia, as the intestines above and to the right side of the rent were firmly adherent to the inner surface of the integument by adhesions which could not be separated, this integument constituting the sole covering of the intestines, the peristaltic action of which was distinctly visible through the thin tissue. The dressing consisted of bichloride gauze, covered by absorbent cotton soaked in glycerin, the whole being retained by a wide binder.

The patient recovered quickly from the anæsthetic, which was administered by Dr. A. E. Burns, of Brooklyn, and had an almost uninterrupted recovery. The temperature rose to 103° on the fifth day, but promptly subsided after free purgation with sulphate of magnesium. The glass tube, which had discharged quite freely, was removed on the third day, when a rubber one was substituted. After the first day there was scarcely any pain; the patient's appetite returned immediately; she was fed on raw eggs and milk for ten days, when an ordinary diet was allowed. The dressing was removed on the eighth day, and primary union found to have taken place, except in the track of the drainage-tube, in which granulation subsequently took place. The patient is now up and around, and able to attend to her household duties.

This is a most remarkable case. Here is a woman, with most unhygienic surroundings—the shanty in which she lived consisting of one room, which served as bedroom, kitchen, and cellar, lying for eighteen hours with thirty-four inches of her intes-

tines outside the abdomen, and peritonitis well advanced, subjected to the additional shock of an anæsthetic and manipulation, who goes on to recovery with scarcely a bad symptom. That she did not have a fatal traumatic peritonitis is probably due to the fact that continued irritation of the peritoneum for years had made it tolerant of abuse. This may also account for the absence of shock. As to sepsis, I have nothing to say.

PUNCTURED FRACTURE OF THE SKULL, IN WHICH THE SUPERIOR LONGITUDINAL SINUS WAS WOUNDED.[1]

BY WILLIAM J. TAYLOR,
SURGEON TO ST. AGNES HOSPITAL.

FOR the history of this case I am indebted to Dr. John B. Maloney, resident physician.

W. R. J., aged thirty-five years, was admitted to the surgical wards of St. Agnes Hospital, about midnight of June 25, 1890, suffering from a punctured fracture of the vertex of the skull. He was brought to the hospital in a patrol wagon, but walked into the wards. Except for a little anxiety and a disposition to quarrel on not being immediately shown to bed, it could not have been known that anything was wrong.

The man could give no account of the injury, but the police officer stated that he had been struck on the head by a pick, at 1 o'clock in the morning, just half an hour before he was seen by me. He became delirious, spoke of his friends, and did not recognize those about him. At half-past one o'clock he was placed under the influence of ether, and the wound examined.

Two inches from the glabella, and about one-half inch to the right of the median line, was a small wound of the scalp, having an appearance as though made by a pick or other pointed instrument. The skull beneath was punctured, and the bone broken into small fragments, which were driven down into the brain-substance. The opening was just large enough to permit the insertion of the finger. The wound was enlarged with a knife, and the scalp turned back. The edges of the skull were cut away by a rongeur forceps, and the depressed pieces of bone removed. It was then seen that the wall of the superior longitudinal sinus had been wounded by a fragment of bone. The hæmorrhage was profuse. Pressure with forceps controlled the bleeding until a larger opening, two and a quarter inches long by two inches wide, and extending one-half inch to the left of the median line, was made in the bone, thoroughly exposing the sinus, and including the whole area of fracture. The dura was torn and the brain itself lacerated. Blood flowed freely from the small tear in the wall of the sinus, which was about one-quarter of an inch long. Packing would not control the hæmorrhage. The patient having already lost a large quantity of blood, and as the imperfect light made it difficult to see, the opening in the sinus was included in the grasp of a pair of hæmostatic forceps, and the hæmorrhage completely controlled; the forceps were allowed to remain. The dura was freely opened, and the brain examined with the finger. The wound was then carefully disinfected, so much of the wound in the dura as was possible was brought together with catgut sutures, and the whole was packed with idoform gauze.

The patient reacted nicely from the operation. At the end of seventy-two hours the hæmostatic forceps was removed from the wound in the sinus; there was no hæmorrhage that was not easily controlled by a packing of iodoform gauze gently applied. On the third day there were symptoms of intense cerebral irritation, with delirium and restlessness, so that it became necessary to strap the man in bed and give morphine and bromides. For some days he passed both urine and fæces in bed, and was extremely weak. He gradually regained strength, and his mind became clear again. The wound healed by granulation. The patient was discharged from the hospital on August 29th entirely well, and returned to his work.

[1] Read at the meeting of the Philadelphia Academy of Surgery, April 6, 1891.

ORIGINAL LECTURES.

SARCOMA OF THE SCROTUM; VESICAL CALCULUS; CATHETERISM; EXCISION OF BUBO.

Abstract of a Clinical Lecture delivered at Bellevue Hospital.

BY JOHN W. S. GOULEY, M.D.,
VISITING SURGEON.

GENTLEMEN: The case of tetanus which some of you saw last week succumbed on the fourth day of the disease. Opisthotonos was almost constantly present during the last twelve hours of life; but only on two occasions was there any laryngeal spasm. At the necropsy only a few ecchymotic spots in the brain and a very slight effusion in the ventricles were found. The spinal cord was not examined.

The case of tuberculosis of the bladder which I showed you at a previous clinic is progressively failing, and although his bladder is irrigated daily with a solution of peroxide of hydrogen, there is still abnormal frequency of micturition. The testicles also have since become implicated in the tuberculous process. A microscopical examination has confirmed the diagnosis of tuberculosis. Such an examination is capable of rendering valuable assistance in the diagnosis of a not very common condition.

To-day I wish to show you the results of the post-mortem examination in a case of scrotal disease which you saw recently. Microscopical examination corroborated the diagnosis of round-cell sarcoma, or, as I prefer to call it, endothelioma. The patient was a man, fifty years old, having a good family history and no history of venereal trouble, who a year previously was injured by stones falling upon him while working in a sewer. The parts most severely injured were the back and scrotum. The scrotum was swollen and painful for six weeks, but at the end of two months the patient had en-

tirely recovered. About ten months later the right side of the scrotum became swollen and painful, and one month before admission to the hospital, the left side also became swollen. The enlargement was accompanied by pain running up on each side into the groin. The tumor had doubled in size within the last two weeks, and during the same period the patient had lost fifteen pounds in weight. Night-sweats had also become troublesome. You notice the great weight of the tumor, which probably gave rise to the dragging pains in the course of the spermatic cords. On section the right testicle is found to be quite hard, the sarcoma having received an accession of fibrous tissue; it therefore becomes an ino-endothelioma. The left testicle is not so hard as the right. Unfortunately, the necropsy included only the testicles, bladder and kidneys; for there was reason to suspect that the lungs had likewise become involved. The bladder was much inflamed, but the ureters and pelves of the kidneys were normal. The kidneys were the seat of interstitial nephritis.

The case of necrosis of the pelvic bones and stone in the bladder which I showed you recently would undoubtedly be temporarily relieved by the removal of the stone; but the operation would be speedily followed by a re-development of the calculus, which would be repeated so long as there was any communication with the diseased pelvic bones.

Let me now invite your attention to this man, seventy years old, who has cystitis, from prostatic obstruction, and a contracted bladder. He has the appearance of one suffering from some disease of the kidney; he is emaciating rapidly, and has irregular chills, which in themselves are almost pathognomonic of pyelitis. This man has brought a soft catheter with him, but it is far too small to be entrusted to the hands of a patient; it is not only safer but also easier to pass a moderately large instrument. The patient ordinarily should be provided with a No. 9 catheter of the English scale, and he should be instructed to use it, if possible, not more than five times in twenty-four hours. As the last portion of urine flows out through the catheter it is seen to be mixed with pus. As the patient withdraws the catheter he neglects to occlude the distal opening with his finger, and consequently a stream of pus dribbles along the whole length of the urethra.

The next patient comes with swollen glands in the groin. Such a condition is often the result of an injury to the foot, such as a "stone bruise," but it is far more frequently due, as in this case, to infectious matter carried from a chancroid through the lymphatics to the glands. When such a chancroidal bubo has suppurated freely, it is best to make a free incision into it and disinfect the parts thoroughly. Before this stage is reached it is wise to excise the whole mass of glands and endeavor to secure primary union. In doing this, care must be taken that the gland be not broken; for, if this occurs, the whole wound may be converted into a huge chancroid. The operator must also be careful that the fingers are free from sores or "hang-nails," lest his fingers become infected and chancroids develop on them. It is not precisely known what the chancroidal infection is, but it certainly is an essentially local infection, although the same microörganisms are found as are observed in chancres. In performing the operation of excision, a free incision should be made parallel to Poupart's ligament, thus exposing the glands, which are then all enucleated, whether diseased or not. The wound is thoroughly cleansed and its edges united by sutures.

MEDICAL PROGRESS.

On Deaths from Chloroform and Ether since the Hyderabad Commission.—DR. LAURENCE TURNBULL, of Philadelphia, recently read a paper upon anæsthetics before the American Medical Association, of which the following is an abstract:

The history of the First and Second Commissions, and the conclusions which they arrived at.

The opposition to the First by the physiologists and practical administrators of anæsthetics, and the adding of Dr. Brunton to the Second Commission, by the efforts of the editors of the London *Lancet*.

The opposition to the conclusions arrived at by the Second Commission, more especially in England and the United States, until the London *Lancet* advised a more careful study and record of deaths.

With this view, Dr. Turnbull has made a most careful collection of all the deaths both from chloroform and ether, from every available source, assisted by several friends. These 43 deaths have been arranged in a tabular form, giving the name, age, history, nature of operation, anæsthetic used, amount used, apparatus employed, posture, how long under influence, whether heart or respiration stopped first, means to resuscitate, how long continued, post-mortem, cause of death, and reference.

He gives as the result of his examinations a brief analysis of the table as follows:

"The whole number of deaths from chloroform and ether is 43. Of this number 39 were deaths from chloroform and 4 from ether. In 5 cases the cause of death was syncope from chloroform, and in 13 cases the heart stopped first. In 10 cases the respiration stopped first, and in 4 cases the heart and respiration ceased at the same time. In 1 case cyanosis, no pulse. In 12 of the cases it is not stated whether heart or respiration stopped first.

"The cause of death in case No. 37 was due to some peculiar idiosyncrasy. In No. 22 there was paralysis of the pneumogastric nerve, the direct effect of the chloroform, superinduced by efforts at vomiting. After a careful consideration of the report of this case, and as there was cyanosis after vomiting, suffocation was suspected, but this cannot be confirmed, as there was no autopsy. In case No. 20 there was given as cause of death, 'reflex paralysis of the heart,' but there was no post-mortem to confirm this statement.

"There were 21 post-mortems, most of them very imperfect. Nos. 24, 25, 36, and 37 were full and complete, and Nos. 15, 19, 21, 28, and 34 were fairly described in this particular. Many of the cases were very imperfect in their detail, especially those from New South Wales.

"Sufficient cases are given to show the absolute importance of the method of administering chloroform, and to indicate the necessity of the most careful attention to the pulse and respiration.

"The only death from anæsthetics in Philadelphia

during the period stated was one from chloroform (No. 36), while there was not a single death from ether in the numerous hospitals and operations—indeed, we may say, in the thousands of operations.

"The 39 deaths from chloroform added to the 375 collected by us from our work for Dr. H. C. Wood (contained in his address before the International Medical Congress at Berlin) make, up to the present time, 414 cases—the actual number being far greater on account of cases never reported.

"The exceedingly small number of deaths reported from ether demonstrates its great safety; still, it will and does kill, and we notice that the feeble, and persons suffering from malignant disease, are more apt to be its victims (see Nos. 10, 11, and 18). We would advise its use as an anæsthetic, and also would advise a full study and knowledge of the best mode of using it, which we judge is not common in Europe."

Virchow on Koch's Method.—In a recent debate in the Prussian House of Deputies on the granting of additional funds for the Koch Institute for Infectious Diseases, Professor Virchow, among other things, said: "I have never expressed any opinion to my professional brethren on the fundamental value of Koch's method, simply because I do not know how such an opinion can be formulated. I have only communicated a series of personal observations, which have indeed been of service in directing attention to one part of the question, and have especially enforced the need for calm and objective study that is so requisite in these difficult subjects. Dr. Graf [a previous speaker] is still steeped in optimism. He has no right to speak of the importance of the matter until he has proved it, and it is, in fact, not proved. But it would be just as foolish if we, as pessimists, were to say, 'The matter is of no importance whatever; it is only a poison, a noxious substance.' The question has, in fact, been developed in unexpected directions, leading in many quarters to the hope that very striking results can be produced by these powerful measures—a hope which we cannot yet say has been annihilated. As a matter of fact, there is not a single case known in which any form of tuberculosis has been cured by this means. All cases which were for a while regarded as cured have afterward been found to relapse; the improvements were merely temporary, such as often occur under other treatment. On the other hand, there is no doubt whatever, that many serious dangers have been revealed, with regard to which I may claim some merit for myself. Nevertheless, from what I have just said, no doctor who feels called upon to make further trial of the remedy, could by any possibility lay himself open to prosecution. The original trials were, in point of fact, made after results had been obtained in animals, which seemed to justify the expectations that were raised regarding the discovery."—*Lancet*, May 23, 1891.

The Anal Reflex.—RASSOLIMO (*Neurol. Centralbl.*, No. 9, 1891) finds that the anal reflex is exaggerated in neurasthenia, together with general exaggeration of the skin-reflexes; in transverse myelitis, high in seat; and in organic diseases of the nervous system with hyperæsthesia. The reflex is enfeebled or abolished in multiple neuritis, when the sacral plexus is involved; in tabes, when the sphincters are deranged and there is anæsthesia in the region of the anus; in myelitis involving the lower portion of the lumbar enlargement, usually associated with anæsthesia of the rectum, anus and urethra. The reflex is preserved in functional neuroses involving the evacuation of urine, defæcation and the sexual functions.

The Pathological Anatomy of Acromegalia.—At the Tenth International Medical Congress, MARINESCO reported the results of the studies which he, in conjunction with Marie, had made of the pathological anatomy of acromegalia. In the great toe all the structures were hypertrophied, especially the connective tissues. Even the membrana propria of the sweat and sebaceous glands were thickened. The hypertrophy was most marked in the sheaths of the cutaneous nerves, which were degenerated. The changes were less marked in the larger nerves. The bones presented not only columns of hyperplasia, but also true osteogenesis, leading to increased length and thickness. The macroglossia is dependent upon a thickening of the connective tissue and of the muscular bundles of the tongue. The lingual and hypoglossal nerves showed only slight changes—from which it is to be inferred that no relation exists between the hyperplasia of the tongue and changes in the nerves. The cervical sympathetic, especially the lowest ganglion, was decidedly sclerotic. The kidney presented evidences of nephritis, especially cortical. The follicles of the atrophied thyroid gland were hyperplastic and cystically degenerated. The nasal mucous membrane was thickened, its surface tuberculated, the vessels hyperæmic and in places sclerotic and obliterated. These various alterations furnish an anatomical substratum peculiar to acromegalia and distinguishing it from similar affections.—*Münch. med. Wochenschr.*, May 19, 1891.

The Influence of Light upon Pregnancy and upon the Fœtus.—As a result of experiments with mice, VICARELLI (*Annal. di Ostetrica, etc.*, Dec., 1890) found that the absence of light had a tendency to cause early abortion, but did not otherwise modify the course of pregnancy. If the mother was kept in the dark during pregnancy, the development of the offspring was most retarded; the retardation was less decided if, after birth, the offspring were no longer kept in the dark; and least in the case of offspring kept in the dark after birth, the mother having passed pregnancy in the light. The highest degree of development was attained if the mother and the offspring after birth lived in the light.—*Centralbl. f. Gynäkol.*, May 23, 1891.

The Therapeutic Employment of Human Lymph.—MAGNANT (*Bulletin Gén. de Thérap.*, May 15, 1891) proposes to treat pulmonary tuberculosis and other conditions with subcutaneous injections of lymph obtained from blisters by vesication in persons not affected with the disease to be treated. The fluid is sterilized by exposure to prolonged heat, not above 158° to avoid coagulation, and is kept in tightly stoppered bottles. In a number of cases, including a varicose ulcer of the leg, a diabetic ulcer, an enlarged cervical gland, and two cases of pulmonary tuberculosis, excellent results are reported.

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SATURDAY, JUNE 27, 1891.

PUBLIC BATHS.

As a means of public sanitation, the superiority of the "rain bath" (shower bath) over the tub bath forms the theme of a paper contributed to the *Dietetic Gazette*, for May, 1891, by the accomplished editor of that journal. DR. BARUCH points out that the difficulty of keeping tubs clean is the greatest drawback to the public bath, in which facilities must be offered to large numbers in rapid succession. Another obstacle to be overcome is the large quantity of water needed. In a large swimming-tank privacy is not attainable, and either here or in the tub one is immersed most of the time in soiled water.

These difficulties are very simply and effectually overcome by providing a number of small apartments in which the bather stands beneath an obliquely descending "rain" of warm water. "Imagine for a moment," says DR. BARUCH, "a begrimed coal-heaver attempting to rid himself of the accumulation from his day's labor in a tub bath. It would not be long ere he would be immersed in a concentrated solution of coal dust, unless he had a lavish supply of warm water. Let the same individual enter the bath I propose. Being thoroughly soaped, he stands upon an inclined asphalt floor under a large vase from which with some force a coarse spray is descending. Both hands being as free as in the tub, he may rapidly rid himself of all accumulation, which the descending stream would wash away, flowing at once from him upon the inclined floor and thence into the gutter."

Public baths upon this principle have been in use in Europe since 1883, when one constructed upon LASSAR'S suggestion was practically tested at the Hygienic Exposition held in Berlin. A corrugated tin structure of 40 square metres (48 square yards) area was divided into male and female sections with ten bath-cells, two closets, kitchen, and drying-room. In 1887 the plan was put into operation at Vienna, an old building being divided into seventy-two bathing-cells, furnishing 40 litres (40 quarts) of warm water, soap and towel, for the equivalent of two cents in our money. In Berlin a public bath association has erected a building where baths of various kinds are offered at prices varying from 2½ cents to 12½ cents. In six months 103,000 baths were taken and about $7000 received. In Frankfort, the banker THEODOR STERN opened a public "rain" bath which is a model of its kind, costing $5000. Baths, with soap and towels, are furnished for 2½ cents.

In Göttingen and Weimar these baths have been established in connection with the public schools. The bathing is done during the school hours, by a well-arranged plan of relays, which does not interfere with the instruction. The Director of Schools at Weimar is quoted as follows: "The freshness and pleasure for study after the bath, the cultivation of a desire for cleanliness, the promotion of health in our children, offer such decided results in this arrangement that I cannot refrain from urging other schools to establish similar baths." In many German cities manufacturers have provided shower-bath facilities in their factory buildings for the use of their workmen.

At the suggestion of DR. BARUCH, this method of bathing has been substituted for the plunge-bath at the New York Juvenile Asylum. Sixty-eight sprinklers, twenty inches apart, and connected by pipes near the ceiling, have been erected over the site of the former bathing-tank. The water is heated by admixture with steam. "When the sprinklers are all turned on, the children stand in a shower of warm water flowing upon them with some force. They soap and scrub themselves, while this warm rain rinses them off, and the water flows away at once into the sewer. In ten minutes this batch is clear

and another takes its place. Two hundred and eighty are now bathed per hour, while formerly only eighty could be cleansed in the plunge-bath. The quantity of water is only one-eighth of that formerly used." The Association for Improving the Condition of the Poor is now erecting a building in New York City, in Centre Market Place, upon plans drawn according to DR. BARUCH'S suggestion, to be called "The People's Bath," which will accommodate 500 bathers daily, and a similar smaller structure will soon be put up in that city by the trustees of the fund instituted by BARON MAURICE DE HIRSCH for the benefit of Jewish refugees from Russia.

We have called attention to this matter in the hope that other American cities, and especially Philadelphia, will promptly fall into line. The free swimming-baths, maintained by public and private benevolence during a few months of hot weather, are good in their way, but the plan advocated in the article from which we have so freely quoted is vastly superior. It would be simply a waste of words to dilate further upon a fact so evident. We trust that some of the many liberal and public-spirited citizens in whom our city takes just pride may be induced to give the subject consideration, and we are sure the medical profession will cordially coöperate in any good plan toward establishing in Philadelphia a "People's Bath."

THE POWER OF WILL IN DISEASE.

AFTER a hundred years of history and education in scientific medicine, and in a country where shrewd common sense has been developed in the most backward-looking mind—at such time and under such circumstances it would have seemed impossible that the incurably sick, the paralyzed, and the maimed should by thousands flock to a priest to be cured of their diseases. The newspapers say the immense depot at Pittsburg has of late seemed like a hospital, filled as it has been with the poor unfortunate invalids seeking FATHER MOLLINGER'S supernatural aid to make them well. The Father anoints and blesses, and the young man who "had not walked since childhood," upon command goes unassisted "from the altar-rail to the rear of the church, to the amazement of the vast audience." Though the report says the great majority are sadly disappointed—even the squarely impossible cannot be done in these times—a number are found that, with functional affections, under strong emotion, exhibit a change, or an increase of strength, so that the belief in "the power" is kept living.

What is it that makes FATHER MOLLINGER, Christian science, faith cure, medical spiritualism, and to some extent homœopathy possible in the nineteenth century? Were there absolutely no element of truth in these reported "cures," even the dullest dupe would come at last to some consciousness of the hocus-pocus. The manure of the soil nourishing these delusions is a truth too often ignored and neglected by scientific medicine. It is the truth of the power of the emotions, of the will—of the spirit, if you please—over the flesh; of life over the beginnings of disease, and even over disease and death itself. Races and nations differ greatly in their power of resisting and overcoming disease, simply by reason of the characteristic attitude of the will and the disposition of the patient toward the physical illness. Just so do all, even brothers, differ in the same way. Thousands are physically sick because mental resolution and spiritual domination is weak and illogical. This is strikingly true in reference to the beginnings of disease. The secret of continuous good health does not always consist merely in physical resistance or robustness, but in sharply conquering the subtle beginnings of corporeal abnormality by pure will-power. There are two homologues of this power that illustrate it exactly. Who has not seen whimsicality, crankiness and oddity by self-indulgence slowly degenerate into monomania, and even into downright insanity? And again, who can doubt that in the commencement many such persons are perfectly conscious of the abnormal tendency, and are, moreover, perfectly capable of *not* doing the ridiculous or self-forgetful things. They are at first driven by no imperious necessity. It is precisely so when one gives way to immoral courses of life. At first the voice of conscience is clear; by and by control is lost and the voice is entirely silent. The analogies obtain in the matter of health. The adage, "Resist the beginnings of evil," holds also here. All disease begins subtly, almost insensibly, as chill, lassitude, malaise, etc. Caught at this stage and fought down by a virile volition, that which by self-indulgence would have proceeded to genuine fever and illness may often be resolved into routine normality of health. A brisk walk of five miles in the teeth of exhaustion and weariness has saved many from severe illness. And so in types of disease that are, if one may so speak, more

organic. The fact cannot be disputed that many who have believed themselves incapable of walking, under powerful emotion their own will being supplemented and "relayed" by that of another, do really find that they can walk a little. Our confutation of the priest's supernaturalism consists precisely in this proved power of the will. Doubtless orthopædic appliances are often given patients who need only resolution, encouragement, and repeated trial in order to develop by exercise the strength that the crutch really conceals or neutralizes. In the sick-room every experienced practitioner knows how much depends upon the *morale*, the resolution of the patient, and how even death and life may depend upon the will. All this, when we read it, seems trite enough, but its significance is lost sight of in the battle of rival theories of disease, and to some it must seem the froth of nonsense. But the practical lesson of the very obvious truth consists in the simple duty of arousing the will to self-confidence and corporeal domination. As has been well demonstrated, the best cure for the most outrageous hysteria is mental and volitional control—supplanting the patient's diseased imagination by a healthy one—true faith-cure in a legitimate and genuine sense. The puppets of fashionable automatonism are prone to run to the doctor for every ache, real or suspected. To indulge them in their folly sometimes seems to the physician not without a certain worldly excuse. But if a higher ethical ruling is adhered to, duty will counsel encouragement of prophylaxis and hygiene; and among the means of forefending disease an energetic domination of will over the body is often the most vital and important.

WAS THE SNOOK-HERR TRAGEDY DUE TO ICE-CREAM POISONING?

WHEN the manuscript of DRS. MITCHELL and HYNDMAN was sent to THE MEDICAL NEWS, the editor, provisionally accepting the conclusion that arsenic was the cause of the poisoning, was struck by the failure to find in the post-mortem investigations definite traces of arsenic, by the improbability of toxic quantities of arsenic having gained entrance to the food by accident, and also by the lack of motive for poisoning.

Remembering that DR. HULL had made some experiments that tended to prove that the modern ice-cream freezer is in reality a galvanic battery, we asked DR. HULL to summarize the results of his experiments and forward them to us for publication. In complete ignorance of the conclusions of DRS. MITCHELL and HYNDMAN—indeed, in ignorance of all the details of the SNOOK-HERR cases—DR. HULL has theoretically and unconsciously established conclusions that may be of service to those investigating these sad cases. The suggestion of uniting the two sets of facts is our own. It will be noticed that the symptoms presented by the patients are precisely those to be expected from poisoning by the salts of zinc or copper; that the discovery of the copper in the post-mortem examinations would be explained, and also the absence of arsenic-findings in definite quantities. Against this possible explanation would, among other things, be the assertion that those who ate only ice-cream had no symptoms of poisoning. In the first place this would need very clear confirmation in order to squarely offset the error certain to arise from the reports of excited, unscientific persons, etc. But a far more important consideration would be one to which DR. HULL does not allude, but one which, we would suggest, may explain how, of two persons eating cream from the same freezer, one might be killed and the other be unharmed. We allude to the improbability of thorough mixture of the toxic agent throughout the whole mass of cream. In a thick, pasty substance like ice-cream the poison deposited at isolated points would not be uniformly disseminated throughout the cream except by very prolonged turning and stirring.

This view, thrown out by us as a mere suggestion, may, to those with closer clinical experience and study of these cases, appear inadequate and worthless, but from this distance, and in view of the impenetrable mystery surrounding the whole affair, it would, at least as a working hypothesis, appear worthy of the consideration of those specially interested.

SUPERCILIARY ENTROPIUM.

EVERYONE has noticed that after the age of forty or fifty there is often, especially in men, an excessive growth of the hairs of the eyebrow. In such cases it will be found that the hairs frequently evince a tendency to curve downward toward or within the palpebral opening. In examining an eye to discover the cause of conjunctival irritation or congestion, the ophthalmic surgeon, in elevating the upper lid, thoughtlessly draws these hairs away with the thumb, or the patient unconsciously raises

the eyebrow the better to expose the globe. In this way conjunctival irritation due to incurvation of the eyebrow cilia may frequently escape the physician's notice. We have seen in private practice three cases of conjunctival inflammation distinctly traceable to this cause. One of these was of peculiar interest, because the irritation was of the conjunctiva of a socket, from which the eyeball had been enucleated. So far as known, this condition has never been described in the literature of ophthalmology. The treatment, of course, suggests itself. In designating this affection *superciliary entropium*, we do not wish to dictate the nomenclature, if a shorter or better term can be found.

SOCIETY PROCEEDINGS.

THE CINCINNATI ACADEMY OF MEDICINE.

Meeting of June 1, 1891.

G. S. Mitchell, M.D., *President;* T. V. Fitzpatrick, M.D., *Secretary.*

DISCUSSION OF A STUDY OF THE SNOOK-HERR POISONING CASE.

PROFESSORS MITCHELL and HYNDMAN submitted a study of the Snook-Herr poisoning case. [See the current issue of THE MEDICAL NEWS, p. 709.]

In the discussion that followed, DR. WHITTAKER said:

As the symptoms read, the differential diagnosis would include the consideration of cholera morbus, typhoid fever, trichinosis, meat-poisoning, mushroom-poisoning, and a mineral poisoning, most especially arsenic.

Cholera morbus might be excluded because of the large number of people affected, but chiefly because of the persistence of the symptoms after the use of evacuants and morphine subcutaneously.

Typhoid fever sometimes begins with gastro-enteric signs so intense as to resemble poisoning, but this is exceptional. It would be impossible to conceive of forty cases all beginning in this way. In the absence of this knowledge the condition of the mind and the course of the temperature would exclude the diagnosis of typhoid fever.

Trichinosis rarely shows signs of such intensity at the outset, and simultaneously in so many persons. Multiple cases of trichinosis have been considered as true cholera, or as poisonings, but not in late years since we have had definite knowledge concerning trichinosis. Characteristic muscle-pains and œdemas at the end of the first week mark this affection.

Mushroom-poisoning also leads to severe vomiting and diarrhœa at periods varying from six to twenty-four hours after ingestion, with subsequent nervous symptoms, and unless the history of the case be clear (no mushrooms eaten, for instance) or fragments of fungi be found in the discharges, the resemblance to arsenical poisoning may be complete. The speaker had occasion, a few years ago, to treat one of his fellows in Cincinnati for fly-fungus poisoning (muscarine) and was impressed by the signs of intoxication which supervened within one hour after ingestion. The patient chattered and raved incessantly, and was in and out of bed in constant excitement which he strove in vain to subdue. Inhabitants of Kamtschatka partake of this fungus purposely to secure this kind of intoxication, and the poor are said to drink the urine of these rich epicures to indulge the same passion. In the case reported the stomach-tube quickly relieved the physician.

Meat-poisoning, which it is now the fashion to call ptomaine poisoning, we know only in connection with pork and veal. Most of the cases thus reported—as at Andelfinger, 444 cases, 10 deaths; Kloten, 657 cases, 6 deaths—on examination turn out to have been trichinosis or typhoid fever. Nevertheless, undoubted cases, independent of these diseases, have been reported. Perhaps the best-observed cases were reported by Gärtner, of Jena: fifty-eight cases in twenty-five families; one death, in a laborer aged twenty-one, taken ill in two hours and dead in thirty-five hours after taking the food. The other fifty-seven cases became sick in from twenty-four to thirty hours and recovered in from a few days to two weeks. The main symptoms were enteritis, prostration, sopor. The discharges were studied bacteriologically with the discovery of a so-called bacillus enteridis, which was cultivated and inoculated in various animals. As a rule the symptoms of meat-poisoning show themselves later than those of arsenical poisoning, sometimes not until the day following the ingestion of the poison. Groenouw confirms the statement of Ulrichs that in all severe cases of meat-poisoning there is both dilatation of the pupils and disturbance of accommodation.

Arsenic shows itself by gastro-intestinal irritation and narcosis. The practitioners in these cases, debarred from tests of the vomited matter at the outset, by the absence of all knowledge of other cases, very properly had the urine (in which arsenic has been detected at any time from five hours to two weeks after it has been taken) examined as soon as suspicion was aroused. Arsenic has been found in the liver four hours after administration and has been wholly eliminated from the body in two weeks. Flaudin found that fifteen grains might disappear wholly from the body of animals in three days. It is pretty universally distributed over the body, including the nervous system and the bones. In his experiments with animals, Scolosohoff found arsenic thirty-six times oftener in the brain and cord than in the liver, and in the muscles four times oftener than in the liver. Rand reports a case of exhumation and examination of the contents of the stomach two weeks after death, with negative results, and a re-exhumation and examination of the soft parts two months after death, with positive results. Sonnenschein found arsenic unequally distributed in the bones, but mostly in the pelvis and adjacent vertebræ. So arsenic has been detected in bodies three, eight, ten, by Altschul fourteen, and by Steinhauser twenty-two years after death.

Inasmuch as the symptoms vary so much that an absolute conclusion cannot be based upon them, or upon the lesions, though both symptoms and lesions read like arsenic in these cases, absolute proof here must rest upon exhumation of the bodies of some of the six victims and examination of the viscera and bones.

DR. G. A. FACKLER agreed with the essayists that the evidence presented in the paper argued strongly in favor of their theory. Although it cannot be positively asserted that arsenic was the toxic agent, still, assuming this to be the case, the appearance of all symptoms can be readily explained. He could not, without exception, agree with the previous speaker as to the discovery of arsenic in bodies of all individuals who had died from the poisonous effects of that drug, even if such bodies be exhumed months after death. It is true that a large number of cases have been reported to substantiate this statement. Yet an equally large number have been reported that would contradict it. We can easily reconcile such apparent contradiction by remembering the fact that arsenic is rapidly eliminated. The first class of cases, then, includes those in which the period between ingestion of the poison and death is brief—too brief to insure complete elimination. The second class, to which the one under discussion belongs, includes those in which considerable time has elapsed after the administration of arsenic until a fatal effect ensues, thus permitting the entire or nearly all of the amount absorbed to leave the body. We must not forget that the toxic effects of arsenic are not due to its direct action upon the tissues. If the agent be injected subcutaneously the same changes will be observed in the internal organs, *i. e.*, the degeneration of glandular organs, submucous structures of the gastro-intestinal tract, manifestations on the part of the pleura identical with those described in the paper of the evening, etc. This action is due to the fact that arsenic, after its absorption, acts alternately as a reducing and as an oxidizing agent, arsenious acid being changed by the absorption of oxygen into arsenic acid; and, again, giving off oxygen, this is changed to arsenious acid. Such changes produce a rapid interchange of oxygen within the protoplasmic structure of the organs in which either of the acids finds entry, and must exercise a destructive action upon them. Thus arsenic sweeps, like a fire, through the organism and, in cases in which life is prolonged, disappears, leaving devastation behind. In these very cases (and the one reported probably belongs to this class) the alterations and degenerative changes produced are of such severe character as to result in a loss of the functional power of the affected organs that must lead to a fatal termination. Exhume such bodies and the closest scrutiny and most accurate analysis of all tissues will not disclose a trace of the poison.

It is true that our knowledge of ptomaines and their action is very meagre. Yet we must not disregard the possibility of their existence. Cases have been reported, especially in Italian literature, in which chemical examination has disclosed the presence of various mineral poisons and alkaloids, and a more careful examination revealed the fact that the symptoms observed ante-mortem, as also the post-mortem changes, were attributable to the presence of certain ptomaines.

DR. S. P. KRAMER said that he thought that the fact of copper being found had not been sufficiently dwelt upon. Arsenic was rapidly eliminated from the system and copper more slowly; therefore he thought the possible source of poison in these cases might have been the tri-arsenite of copper, or Paris-green as it was more commonly termed, which contained a large amount of copper.

PROF. DICKORE said, in answer to the statement made by the previous speaker in reference to Paris-green, that it contained a larger amount of arsenic than copper, and that the former was more quickly eliminated from the system than the copper. He still thought that the presence of copper might indicate one of the sources of the poisoning. By very careful work he had obtained several little black spots on white porcelain, which looked exactly like those produced by arsenic. Under other circumstances, when no medico-legal question was involved, he would have called these spots "arsenic;" since they were too small to produce all the arsenic reactions he could not make any other report than the one he had given the coroner. Small quantities of arsenic were sometimes found in medicinal preparations, as for instance in subnitrate of bismuth. It would have been interesting to have had the bismuth administered in these cases examined for arsenic. It must also be remembered that arsenic is by no means of uncommon occurrence in some sections of Kentucky, Ohio and Indiana. Most iron pyrites, and the water of some mineral springs, contain arsenic. Traces may enter the human body from such sources. Copper is sometimes found in articles of diet. Cases are on record in which fatal poisoning has happened from eating pickles colored with copper; also from other dishes of acid reaction kept or prepared in copper vessels. The speaker had met a brother of Mrs. Snook who had just recovered from the poisoning, and who said that an aunt who had eaten none of the chicken-salad had become sick and died; another relative had partaken of everything, but had drunk no coffee or water from the silver pitcher on the table; this relative remained well. These facts speak against the theory of ptomaine-poisoning. In the case of the brother of Mrs. Snook, it was stated that the solid parts of his discharges were of a tea-green color; this points toward copper-poisoning. He was under the impression that the water in the silver pitcher contained the poison. He also stated that the taste of the coffee was disagreeable, to such a degree that he could not even yet bear the smell of coffee. The speaker said that in his opinion the mystery was not entirely cleared up. He would recommend that the bodies of some of those who had died first be exhumed and carefully examined; should they all contain copper and arsenic, then Paris-green was the poison; but should they show copper only, or only arsenic, then the one or the other of these metals would be the cause of death. The young man referred to had ulcers of the lips, gums and tongue, such as are result from mineral poisons.

DR. MITCHELL, in replying to a question of Dr. Evans, stated that he had very recently received a letter from Dr. Irwin, of Louisville, who had treated many of these poisoning cases; that up to that date no post-arsenical paralysis had appeared in any of his cases.

DR. HYNDMAN, replying to a remark of one of the previous speakers, warned him that in case any of the bodies now buried should be exhumed and copper should be found on chemical analysis, not to jump to the conclusion that that metal was the cause of death unless found in very large quantity. As stated in the report, copper is so often found in chemical analyses of the body, that it is claimed by some chemists to be a normal constituent.

NEWS ITEMS.

British Medical Association.—The fifty-ninth annual meeting of the British Medical Association will be held at Bournemouth on Tuesday, Wednesday, Thursday and Friday, July 28, 29, 30 and 31, 1891.

An Address in Medicine will be delivered by Thomas Lauder Brunton, M.D., F.R.S., Lecturer on Materia Medica and Therapeutics at St. Bartholomew's Hospital, London; an Address in Surgery will be delivered by John Chiene, M.D., F.R.C.S.Ed., Professor of Surgery at the University of Edinburgh; an Address in Public Medicine will be delivered by Edward Cox Seaton, M.D., Lecturer on Public Health at St. Thomas's Hospital, London.

In the Section of Medicine the discussion on Wednesday, July 29th, on the Etiology and Prevention of Phthisis will be opened by P. H. Pye-Smith, M.D., F.R.S. Speakers: Professor Gairdner; E. Symes Thompson, M.D.; Sir Walter Foster, M.D.; J. B. Yeo, M.D.; J. G. S. Coghill, M.D.; T. W. Blake, M.R.C.S.; R. Robertson, M.B.; M. A. Boyd, M.B.; T. A. Vesey, M.B.; J. Moorhead, M.D.; E. Markham Skerritt, M.D.; A. E. Sansom, M.D. The discussion on Thursday, July 30th, on Lupus will be opened by Dr. J. F. Payne. Speakers: T. Colcott Fox, M.B.; P. S. Abraham, M.D.; J. Moorhead, M.D. The discussion Friday, July 31st, on the Effects of Alcohol will be opened by Dr. Wilks, F.R.S. Speakers: Professor Gairdner; Dr. Ferrier, M.D., F.R.S.; E. Symes Thompson, M.D.; Sir Walter Foster, M.D.; E. Long Fox, M.D.; J. C. Bucknill, M.D., F.R.S.; I. Burney Yeo, M.D.; Isambard Owen, M.D.; E. M. Skerritt, M.D.; J. Moorhead, M.D.; J. Watts Parkinson, M.R.C.S.; A. E. Sansom, M.D.

The following papers have been promised: Clinical Observations upon the Cardiac Bruits of Chlorosis, by A. G. Barrs, M.D.; Cancer and Phthisis occurring in Different Members of the Same Family, by T. W. Blake, M.R.C.S.; (subject unannounced), by J. G. S. Coghill, M.D.; Erysipelas of the Pharynx, by F. de Haviland Hall, M.D.; Some Points in the Treatment of Influenza, by Norman Kerr, M.D.; Differentiation in Rheumatic Diseases, by Hugh Lane, M.R.C.S.; On the Heart Sounds in Pulmonary Phthisis, by R. Robertson, M.B.; Hydrophobia, by T. A. Vesey, M.B.; Consumption—the Conditions of its Cure, by I. Burney Yeo, M.D.

In the Section of Surgery arrangements have been made for the following important subjects to come under discussion: 1. The Value of Professor Koch's Method in the Treatment of External Tuberculosis, to be introduced by William Watson Cheyne, F.R.C.S.; Mr. C. B. Keetley will take part in this discussion. 2. Abdominal Surgery: (i) The Operative Treatment of Peritonitis; (ii) The Treatment of Strangulated Hernia by Median Abdominal Section; to be introduced by Lawson Tait, F.R.C.S. 3. The Present Position of Intra-nasal Surgery; to be introduced by W. J. Walsham, F.R.C.S.

The following papers have been announced: Cancer of the Rectum and its Surgical Treatment, by Alfred Cooper, F.R.C.S.; Notes from an Experience of 100 Cases of Urinary Tuberculosis, by E. Hurry Fenwick, F.R.C.S.; The Limits to the Curability of Scoliosis—A Clinical Inquiry, by C. H. Golding-Bird, F.R.C.S.; On the Treatment of Peritonitis and of Hernia by Abdominal Section, by C. B. Keetley, F.R.C.S.; On the Treatment of Peritonitis and of Hernia by Abdominal Section, by C. B. Lockwood, F.R.C.S.; 1. The Relation of Movable Kidney to Hydro-nephrosis; 2. A New and Certain Way of Obliterating Hernial Sacs and Performing Radical Cure for Hydrocele, by R. Clement Lucas, M.B., B.S.; Intra-nasal Surgery in Relation to Sneezing and Hay Fever, by Greville MacDonald, M.D.; On the Treatment of Peritonitis and of Hernia by Abdominal Section, by H. A. Reeves, F.R.C.S.Ed.; On the Present Position of Nasal Surgery, by Charters J. Symonds, M.S., F.R.C.S., and Scanes Spicer, M.D.; On the Pathology, Diagnosis and Surgical Treatment of Necrosing Ethmoiditis, by E. Woakes, M.D.

In the Section of Obstetric Medicine and Gynecology the discussion on Puerperal Eclampsia will be opened by Dr. Galabin, and discussed by Dr. Braxton Hicks, Dr. Aust Lawrence, Professor Auvard (Paris), Dr. More Madden and others.

The discussion on Uterine Polypi will be opened by Dr. Murphy, and discussed by Dr. Robert Bell, Dr. More Madden, Dr. Godson, Dr. Murdoch Cameron, Professor Auvard, and others. A Demonstration on Frozen Sections of the Pregnant Cadaver will be given by Dr. Freeland Barbour.

The following papers have been announced: The Medical Treatment of Cervical Metritis, by Professor Auvard (Paris); The Treatment of Chronic Disease of the Uterine Adnexa, by Robert Bell, M.D.; Murdoch Cameron, M.D., will show an Improved Crutch for Operations; Eclampsia Occurring in a Primipara aged Fifteen and a Half Years, by D. D. Donovan, F.R.C.S.; Two Additional Cases of Porro's Operation, by Clement Godson, M.D; Early Incision and Drainage in Cases of So-called Pelvic Abscess, by Aust Lawrence, M.D.; On the Treatment of Puerperal Convulsions, by More Madden, M.D.; A Case of Epithelioma of the Perineum Treated by Electricity, by J. Inglis Parsons, M.D.; Midwives Should be Ended, not Mended, and the Public Supplied with Thoroughly Trained Obstetric Nurses, by R. Reid Rentoul, M.D.; A Case of a Rapidly Recurring Uterine Polypus, by William Travers, M.D.

In the Section of Public Medicine the following papers have been announced: Factory and Workshop Sanitary Inspection, by H. W. Langley Browne, F.R.C.S.Ed.; An Outbreak of Diphtheria at Leeds, by Spottiswoode Cameron, M.D.; Diphtheria—the Cause of its Increase and the Means to be Adopted for its Prevention, by Alf. Carpenter, M.D.; The Notification of Diseases Act—Should Measles or Other Diseases be Added to the Number of Compulsory Notifiable Diseases? by Harvey Littlejohn; The Powers Conferred on Sanitary Authorities with Regard to Slaughterhouses, Bakehouses, and Milkshops, by H. Manley, M.D.; Vaccination—What Constitutes Efficient Vaccination? by H. May, L.R.C.P., and C. E. Underhill, M.D.; The Duty of the Medical Officer of Health with Reference to the Examination of Notified Cases of Infectious Disease and the Sanitary Inspection and Disinfection of Premises, by B. H. Mumby, M.D.; The Discharge of Town Sewage into the Sea Near Watering-places and Seaside Health Resorts, by Louis Parkes, M.D.; The Influenza Epidemic and its Distribution in the British Isles, by Frank-

lin Parsons, M.D., V.P.; The Water Supply of Rural Communities where (*a*) Streams, (*b*) Ponds, or (*c*) Shallow Wells are Relied On, by J. C. Thresh, M.D. (Chelmsford), and E. F. Willoughby, M.D.; It is Imprudent and Inexpedient to Treat Scarlet Fever and Diphtheria in the same Isolation Hospital, by Wm. Thursfield, M.D.; The Disposal of the Dead, by Sir T. Spencer Wells, Bart., and J. Comyns Leach, M.D.; The Communicability of Tuberculous Diseases from Animals to Man, by G. Sims Woodhead, M.D., and Professor McFadyean (Edinburgh).

In the Section of Psychology the President, P. Maury Deas, M.B., will deliver an address, to be followed by a discussion. Dr. T. Clifford Allbutt, F.R.S., will open a discussion On the Proposed Hospitals for the Treatment of the Insane. In conjunction with Dr. Allbutt's paper, Dr. F. H. Walmsley (Leavesden Asylum) will read a paper on the Desirableness of Throwing Open Our Asylums for the Post-Graduate Study of Insanity. Dr. T. Claye Shaw, F.R.C.P., will introduce a discussion on the Surgical Treatment of General Paralysis. Dr. G. H. Savage, F.R.C.P., will initiate a discussion on the Influence of Surroundings on the Production of Insanity. A contribution on the Truth of the Idea of Heredity, by Dr. Wm. Wallace (Glasgow), will form part of this discussion.

The following papers have been announced: Weak-minded Criminals: their Psychological and Anthropological Characteristics, by J. Baker, M.B. (H. M. Prison, Portsmouth); The Value of Sulphonal as a Mental and Motor Sedative, by J. A. Ewan, M.B. (Dorset County Asylum); Psychopathic Epidemics, by Theo. B. Hyslop, M.B. (Bethlem); Some Unusual Forms of General Paralysis, by A. Little, M.B. (Virginia Water); The Criminal Acts of Criminal Lunatics, by D. Nicolson, M.D.; Puerperal Insanity, by S. T. Smyth, M.D. (Bournemouth); Cancer in its Relations to Insanity, by H. Snow, M.D. (London); Association of Various Conditions of Development in Relation to Brain Power and Nutrition, by Francis Warner, M.D. (London).

Should the Committee of Investigation on Hypnotism present a report, it is proposed that this report be considered and probably discussed on Thursday, July 30th. In addition to those gentlemen who are to open discussions and read papers, the following will take part in the deliberations of the Section: Professor Gairdner, Sir J. Crichton Browne, Dr. Hughlings Jackson, Dr. Batty Tuke, Professor Ferrier, Dr. Macewen (Glasgow), Dr. Bateman (Norwich), Dr. Fletcher Beach, Dr. Mercier, Dr. Wiglesworth, Dr. Outterson Wood, Dr. Needham, Dr. Gayton, Dr. Strahan.

In the Section of Pathology, Dr. Hingston Fowler will open a discussion on Arrested Pulmonary Tuberculosis. Mr. F. G. Eve will open a discussion on Senile Changes in the Bones. Dr. Phineas Abraham will give a demonstration on Microscopic Sections of Skin Diseases. Dr. Carey Coombs will give a demonstration with Hæmoglobinometer and Two Cytometers.

The following papers have been announced: A Short Account of Herxheimer's Spirals in the Epidermis and Mucous Membranes, Illustrated by Microscopical Sections of Various Skin Affections, by Alfred Eddowes, M.D.; A series of Specimens of Heart Diseases, with Verbal Demonstration, by Francis Hawkins, M.D.; Paper and specimens, The Specific Gravity of the Blood in Disease, by E. Lloyd Jones, M.B.; Robert Maguire, M.D., will show specimens and make a communication on Lymphadenoma of the Solar Plexus with Bronzed Skin; A paper on the Accurate Measurements of the Cubic Contents of the Several Chambers of the Heart, by J. R. Radcliffe, M.B., and T. Stacey Wilson, M.B.; On the Real Anatomical Nature of So-called Arterio-capillary Fibrosis, its Symptoms During Life, and its Relation to Granular Kidney (during Bright's disease), by Thomas Saville, M.D.; Paper and specimens, The Insidious Bone Lesions of Mammary Carcinoma (second paper), by Herbert Snow, M.D.; Paper and specimens, Gynæcomastia, by Roger Williams, F.R.C.S. The following gentlemen have also promised papers: Dr. Handford, Dr. Sims Woodhead, Dr. W. Russell, and Dr. McMunn.

In the Section of Ophthalmology two subjects have been set down for special discussion: 1. The Treatment of Infantile Cataract; 2. The Treatment of Lachrymal Disease.

The following papers are announced: Vision Tests as Applied to Railway Servants, by W. M. Beaumont, M.R.C.S.; Some Cases of Retinal Detachment, by W. A. Brailey, M.D.; The Pathology of the Ophthalmoplegiæ, by W. J. Collins, M.D., and L. Wilde, M.D.; A Review of the Tests for Color-blindness, by F. W. Edridge-Green, M.D.; Cases of Sarcoma of Choroid Causing Death by Metastasis, by A. Hill Griffith, M.D.; The Value of Electricity in Affections of the Optic Nerve and Retina, by C. G. Lee, L.R.C.P.; Control of Railway Servants' Eyesight, by M. M. McHardy, F.R.C.S.Ed.; The Action and Uses of Prismatic Combinations, by A. S. Percival, M.B.; Some Points in the Treatment of Lamellar Cataract, by C. Wray, F.R.C.S.

In the Section of Diseases of Children the two following subjects have been set down for special discussion: 1. The Feeding of Infants up to the Completion of the First Dentition—to be opened by Dr. Henry Ashby, of Manchester; Dr. Cheadle, Professor Baginsky, of Berlin; Dr. Emil Pfeiffer, of Wiesbaden; Dr. Louis Marshall, of Nottingham; and Dr. Angel Money, will take part. 2. The Treatment of Pleurisy and Empyema in Children, and their Value—to be opened by Mr. R. J. Godlee; Mr. W. H. A. Jacobson, Mr. Watson Cheyne, Professor Baginsky, of Berlin, Dr. Emil Pfeiffer, of Wiesbaden, Dr. Angel Money, Dr. G. A. Carpenter, and Dr. Lewis Marshall, of Nottingham, will take part.

The following paper is announced: Osteotomy Generally; with Special Reference to Tarsectomy in Advanced and Intractable Cases of Talipes Equino varus, by John Ewens, L.R.C.P.

Section of Therapeutics: A discussion on Koch's Treatment of Consumption—to be introduced by the President. The following gentlemen will take part in the discussion: Mr. Watson Cheyne, Dr. E. Markham Skerritt, Dr. Barrs, Mr. Fowler, and others. A discussion on Anæsthetics will be introduced by Dr. Lauder Brunton. The following gentlemen will take part in the discussion: Dr. Dudley Buxton, Dr. Barrs, Mr. Hartley, Mr. Pridgin Teale, and others.

The following papers are announced: On the Use of Digitalis in Aortic Disease, by — Barrs, M.D.; On Anæsthetics, by Dudley Buxton, M.D.; On the Treatment of Exophthalmic Goitre, by H. W. Denton-Cardew, M.R.C.S.

The Practice of Medicine in France.—A new medical law has passed the French Chamber of Deputies by which no one shall be allowed to practise medicine in France without a diploma of Doctor of Medicine granted by the Government after examinations passed before a State institution of superior medical education.

Dr. J. C. Culbertson, of the Cincinnati *Lancet and Clinic*, has been appointed by the Board of Trustees to succeed Dr. John H. Hollister in the editorial control of *The Journal of the American Medical Association.*

The Mississippi Valley Medical Association will hold its seventeenth annual session at St. Louis, October 14, 15, and 16, 1891. The medical profession is respectfully invited to attend the meeting.

Port Physician of Philadelphia.—Dr. Henry Leffmann has entered upon the duties of the office of Physician of the Port of Philadelphia, to which he has been appointed by the Governor of the State and which position he has on a previous occasion most creditably filled.

The Medical Society of Franklin County will hold a meeting, to be followed by a banquet, at Chambersburg, July 21, 1891. Dr. John Montgomery will deliver an address of welcome. Dr. D. F. Unger will present "Observations on Cancer." Dr. Geo. S. Hull will consider "What the Eye Reveals to the Physician Concerning General Diseases." Dr. I. N. Snively will report upon "Some Unique Surgical Operations."

Montour County Medical Society.—The seventeenth annual meeting of the Montour County Medical Society will be held at the State Hospital for the Insane, Danville, Penna., June 18, 1891. Papers will be read by Dr. S. S. Schultz on "Limitation to Curative Work in State Hospitals for the Insane;" Dr. N. W. Voorhees on "Tuberculous Peritonitis;" Dr. H. B. Meredith on "Hypertrophic Cirrhosis of the Liver, with the Report of a Case;" Dr. J. R. Kimerer on "Peculiar Sequelæ of Pneumonia;" Dr. E. A. Curry on "Multiple Abscesses." Dr. James Oglesby will present a sketch of the Society, and the retiring President, Dr. C. B. Mayberry, will deliver an address.

New Lecturers at the Polyclinic.—Dr. H. R. Wharton has been elected Lecturer on Surgical Diseases of Children. In a part of the course the subjects of tracheotomy and intubation will be considered. Dr. Chas. P. Noble has been elected Lecturer on Gynecology; Dr. Jas. K. Young, Lecturer on Orthopædic Surgery; Dr. G. Betton Massey, Lecturer on Gynecological Electrotherapeutics, and Dr. Lewis H. Adler, Lecturer on Diseases of the Rectum.

The Congress of American Physicians and Surgeons will be held at Washington, from 3 to 6 P.M., September 22, 23, 24 and 25, 1891. Dr. William Pepper, of Philadelphia, is Chairman of the Executive Committee.

Association of the Military Surgeons of the National Guard.—The regular meeting of the Association of Military Surgeons of the Wisconsin National Guard was held in Milwaukee, June 20, 1891.

The proposed meeting of the Surgeons of the National Guard of the United States, which was to have been held in Chicago in July next, has been postponed until September. Due notice of the date of meeting will be given. Every effort will then be made to organize an "Association of Military Surgeons of the National Guard." About four hundred surgeons throughout the United States have thus far expressed a willingness to attend the meeting. At the first meeting papers will be read by Surgeon-General Bryant, of the New York N. G.; by Surgeon-General Yandell, of the Kentucky N. G.; by Surgeon-General Senn, of the Wisconsin N. G.; and by the Surgeon-General of the Illinois N. G. The Association will be entertained in Chicago by the local Guard.

W. W. Keen, A.M., M.D.—At the one hundred and twenty-third annual commencement of Brown University the honorary degree of Doctor of Laws was, among others, conferred upon Dr. William Williams Keen, Professor of the Principles of Surgery and of Clinical Surgery in the Jefferson Medical College. In thus doing deserved honor to a distinguished alumnus, Brown University has added to its own laurels.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 16 TO JUNE 22, 1891.

By direction of the Secretary of War, WILLIAM C. BORDEN, *Captain and Assistant Surgeon*, will, upon the final abandonment of Fort Davis, Texas, report in person to the commanding officer Jackson Barracks, La., for duty at that post.—Par. 4, *S. O. 139, A. G. O.*, June 18, 1891.

MCKEE, JAMES C., *Lieutenant-Colonel and Surgeon.*—Having been found incapacitated for active service, on account of disability incident to the service, is, by direction of the President, retired from active service this date, under the provisions of Section 1251, R. S.—Par. 4, *S. O. 137, A. G. O.*, June 16, 1891.

TAYLOR, BLAIR D., *Captain and Assistant Surgeon*, is granted leave of absence for one month, to take effect on or about the 1st proximo.—Par. 3, *S. O. 65, Department of the Missouri*, June 15, 1891.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JUNE 20, 1891.

RUTH, M. L., *Surgeon.*—Detached from U. S. S. "Newark," and granted leave of absence for six months, with permission to leave the United States.

BRIGHT, GEORGE A., *Surgeon.*—Ordered to the U. S. S. "Newark."

PIGOTT, M. R., *Assistant Surgeon.*—Ordered to the U. S. Receiving-ship "Independence."

WELLS, HOWARD, *Surgeon.*—Detached from Naval Hospital, Chelsea, and wait orders.

STEELE, J. M., *Passed Assistant Surgeon.*—Ordered to Naval Hospital, Chelsea, Mass.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will upon publication be liberally paid for, or 250 reprints will be furnished instead of payment, provided that the request for reprints be noted by the author at the top of the manuscript. When necessary to elucidate the text, illustrations will be provided without cost to the author.

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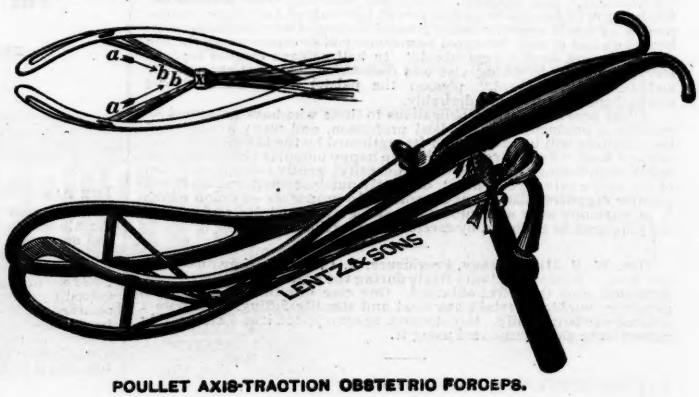

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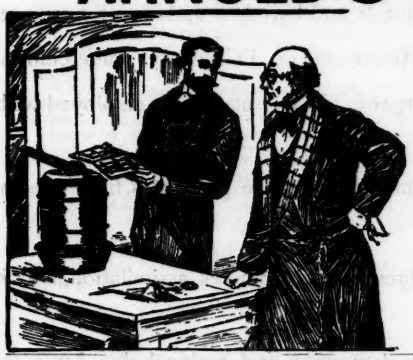

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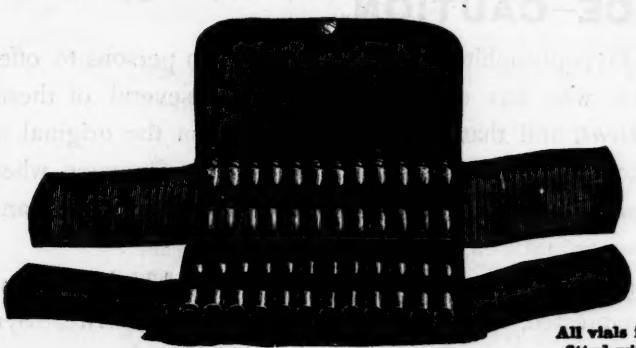

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It Differs in its Effects from all Analogous Preparations; and it possesses the important properties of being pleasant to the taste, easily borne by the stomach, and harmless under prolonged use.

It has Gained a Wide Reputation, particularly in the treatment of Pulmonary Tuberculosis, Chronic Bronchitis, and other affections of the respiratory organs. It has also been employed with much success in various nervous and debilitating diseases.

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The success of Fellows' Syrup of Hypophosphites has tempted certain persons to offer imitations of it for sale. Mr. Fellows, who has examined samples of several of these, ***finds that no two of them are identical,*** and that all of them differ from the original in composition, in freedom from acid reaction, in susceptibility to the effects of oxygen when exposed to light or heat, ***in the property of retaining the strychnine in solution,*** and in the medicinal effects.

As these cheap and inefficient substitutes are frequently dispensed instead of the genuine preparation, physicians are earnestly requested, when prescribing the Syrup, to write, "Syr. Hypophos. ***Fellows.***"

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A REMEDY FOR

DIPHTHERIA; CROUP; SORE THROAT, AND ALL INFLAMMATORY DISEASES OF THE THROAT.

OPINION OF THE PROFESSION.

Dr. Geo. B. Hope, Surgeon Metropolitan Throat Hospital, Professor Diseases of Throat, University of Vermont, writes in an article headed "Some Clinical Features of Diphtheria, and the treatment by Peroxide of Hydrogen" (*N.Y. Medical Record*, October 18, 1890). Extract:

". . . On account of their poisonous or irritant nature the active germicides have a utility limited particularly to surface or open wound applications, and their free use in reaching diphtheritic formations in the mouth or throat, particularly in children, is, unfortunately, not within the range of systematic treatment. In Peroxide of Hydrogen, however, it is confidently believed will be found, if not a specific, at least the most efficient topical agent in destroying the contagious element and limiting the spread of its formation, and at the same time a remedy which may be employed in the most thorough manner without dread of producing any vicious constitutional effect. . . .

"In all the cases treated (at the Metropolitan Throat Hospital), a fresh, standard Marchand preparation of fifteen volumes was that on which the experience of the writer has been based. . . ."

Dr. E. R. Squibb, of Brooklyn, writes as follows in an article headed "On the Medical Uses of Hydrogen Peroxide" (*Gaillard's Medical Journal*, March, 1889, p. 207), read before the Kings County Medical Association, February 5, 1889:

"Throughout the discussion upon diphtheria very little has been said of the use of the Peroxide of Hydrogen, or hydrogen dioxide; yet it is perhaps the most powerful of all disinfectants and antiseptics, acting both chemically and mechanically upon all excretions and secretions, so as to thoroughly change their character and reactions instantly. The few physicians who have used it in such diseases as diphtheria, scarlatina, smallpox, and upon all diseased surfaces, whether of skin or mucous membrane, have uniformly spoken well of it so far as this writer knows, and perhaps the reason why it is not more used is that it is so little known and its nature and action so little understood. . . .

"Now, if diphtheria be at first a local disease, and be auto-infectious; that is, if it be propagated to the general organism by a contagious virus located about the tonsils, and if this virus be, as it really is, an albuminoid substance, it may and will be destroyed by this agent upon a sufficient and a sufficiently repeated contact. . . .

"A child's nostrils, pharynx and mouth may be flooded every two or three hours, or oftener, from a proper spray apparatus with a two volume solution without force, and with very little discomfort; and any solution which finds its way into the larynx or stomach is beneficial rather than harmful, and thus the effect of corrosive sublimate is obtained without its risks or dangers. . . . ."

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BY A. C. PEALE, M. D., *Consulting Chemist, United States Geological Survey.*

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Does not contain any Medical properties besides that of the Pure Quinine.

It is tasteless because the Quinine is insoluble in the mouth, but dissolves readily in the stomach.

Does not Cost the Consumer any more than Quinine, when bought in Pills or Capsules.

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In offering this preparation to the Medical Profession, we can state from personal experience, that it will produce the same result as the Quinine sulphate, without its bitter nauseating taste.

The process does not change the medical properties of the Quinine. Samples will be placed with several prominent Chemists for analysis, and in due time their reports will be published, confirming all we claim for this preparation.

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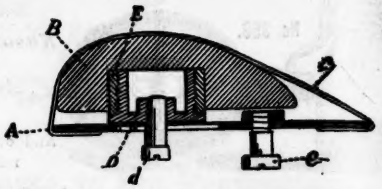

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